



**ACIDIC PRECIPITATION IN ONTARIO STUDY**

**1981 SUMMARY STATISTICS**

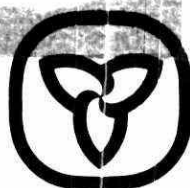
**OF OBSERVED CONCENTRATION AND DEPOSITION**

**DAILY PRECIPITATION MONITORING NETWORK**

**JUNE, 1983**

**ARB-86-83-ARSP**

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**Ontario**

**Ministry  
of the  
Environment**

The Honourable  
Andrew S. Brandt  
Minister

Gérard J. M. Raymond  
Deputy Minister

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ACIDIC PRECIPITATION IN ONTARIO STUDY

1981 SUMMARY STATISTICS  
OF OBSERVED CONCENTRATION AND DEPOSITION  
DAILY PRECIPITATION MONITORING NETWORK

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June 1983

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Project Co-ordinator: Dr. T. G. Brydges

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|---|---------------------|---------------------|--|-------------|----|----|-----------------|----|----|--------|----|----|----------|----|----|-----------------|----|----|-------------|----|----|--------------|----|----|-----------|----|----|-----------|----|----|-----------|----|----|----------------|----|----|---------|----|----|------------|----|----|----------------|----|----|-----------|----|----|---------------|----|----|--|
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| Central Region  | 1                   |                     |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Northwestern Region   | 5                   |                     |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Southeastern Region   | 9                   |                     |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Southwestern Region   | 13                  |                     |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| <b>PART IV      BAR/STEM.LEAF CHARTS OF OBSERVED<br/>DEPOSITION BY REGION</b>   |                     |                     |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Central Region  | 17                  |                     |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Northwestern Region   | 20                  |                     |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Southeastern Region   | 23                  |                     |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Southwestern Region   | 26                  |                     |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
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| <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; width: 40%;"><u>Station</u></th> <th style="text-align: left; width: 40%;"><u>Map Ref. No.</u></th> <th style="text-align: right; width: 20%;"></th> </tr> <tr><td>Balsam Lake</td><td>06</td><td style="text-align: right;">29</td></tr> <tr><td>Charleston Lake</td><td>11</td><td style="text-align: right;">31</td></tr> <tr><td>Dorset</td><td>08</td><td style="text-align: right;">33</td></tr> <tr><td>Fernberg</td><td>16</td><td style="text-align: right;">35</td></tr> <tr><td>Forbes Township</td><td>13</td><td style="text-align: right;">37</td></tr> <tr><td>Graham Lake</td><td>12</td><td style="text-align: right;">39</td></tr> <tr><td>Lac La Croix</td><td>15</td><td style="text-align: right;">41</td></tr> <tr><td>Longwoods</td><td>02</td><td style="text-align: right;">43</td></tr> <tr><td>Melbourne</td><td>01</td><td style="text-align: right;">45</td></tr> <tr><td>Nithgrove</td><td>07</td><td style="text-align: right;">47</td></tr> <tr><td>North Easthope</td><td>03</td><td style="text-align: right;">49</td></tr> <tr><td>Railton</td><td>10</td><td style="text-align: right;">51</td></tr> <tr><td>Raven Lake</td><td>05</td><td style="text-align: right;">53</td></tr> <tr><td>Quetico Centre</td><td>14</td><td style="text-align: right;">55</td></tr> <tr><td>Wellesley</td><td>04</td><td style="text-align: right;">57</td></tr> <tr><td>Whitman Creek</td><td>09</td><td style="text-align: right;">59</td></tr> </table> | <u>Station</u>      | <u>Map Ref. No.</u> |  | Balsam Lake | 06 | 29 | Charleston Lake | 11 | 31 | Dorset | 08 | 33 | Fernberg | 16 | 35 | Forbes Township | 13 | 37 | Graham Lake | 12 | 39 | Lac La Croix | 15 | 41 | Longwoods | 02 | 43 | Melbourne | 01 | 45 | Nithgrove | 07 | 47 | North Easthope | 03 | 49 | Railton | 10 | 51 | Raven Lake | 05 | 53 | Quetico Centre | 14 | 55 | Wellesley | 04 | 57 | Whitman Creek | 09 | 59 |  |
| <u>Station</u>  | <u>Map Ref. No.</u> |                     |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Balsam Lake   | 06                  | 29                  |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Charleston Lake   | 11                  | 31                  |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Dorset  | 08                  | 33                  |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Fernberg  | 16                  | 35                  |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Forbes Township   | 13                  | 37                  |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Graham Lake   | 12                  | 39                  |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Lac La Croix  | 15                  | 41                  |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Longwoods   | 02                  | 43                  |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Melbourne   | 01                  | 45                  |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Nithgrove   | 07                  | 47                  |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| North Easthope  | 03                  | 49                  |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Railton   | 10                  | 51                  |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Raven Lake  | 05                  | 53                  |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Quetico Centre  | 14                  | 55                  |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Wellesley   | 04                  | 57                  |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Whitman Creek   | 09                  | 59                  |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| <b>PART VI      SUMMARY STATISTICS OF OBSERVED<br/>CONCENTRATION BY REGION</b>  |                     |                     |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Central Region  | 61                  |                     |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Northwestern Region   | 63                  |                     |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Southeastern Region   | 65                  |                     |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |
| Southwestern Region   | 67                  |                     |  |             |    |    |                 |    |    |        |    |    |          |    |    |                 |    |    |             |    |    |              |    |    |           |    |    |           |    |    |           |    |    |                |    |    |         |    |    |            |    |    |                |    |    |           |    |    |               |    |    |  |



**PART VII SUMMARY STATISTICS OF OBSERVED DEPOSITION  
BY STATION**

| <u>Station</u>  | <u>Map Ref. No.</u> |    |
|-----------------|---------------------|----|
| Balsam Lake     | 06                  | 69 |
| Charleston Lake | 11                  | 71 |
| Dorset          | 08                  | 73 |
| Fernberg        | 16                  | 75 |
| Forbes Township | 13                  | 77 |
| Graham Lake     | 12                  | 79 |
| Lac La Croix    | 15                  | 81 |
| Longwoods       | 02                  | 83 |
| Melbourne       | 01                  | 85 |
| Nithgrove       | 07                  | 87 |
| North Easthope  | 03                  | 89 |
| Railton         | 10                  | 91 |
| Raven Lake      | 05                  | 93 |
| Quetico Centre  | 14                  | 95 |
| Wellesley       | 04                  | 97 |
| Whitman Creek   | 09                  | 99 |

**PART VIII SUMMARY STATISTICS OF OBSERVED DEPOSITION  
BY REGION**

|                     |     |
|---------------------|-----|
| Central Region      | 101 |
| Northwestern Region | 103 |
| Southeastern Region | 105 |
| Southwestern Region | 107 |

**PART IX STATISTICAL DISTRIBUTION COMPARISON  
OF OBSERVED CONCENTRATION**

|                     |     |
|---------------------|-----|
| Central Region      | 109 |
| Northwestern Region | 110 |
| Southeastern Region | 111 |
| Southwestern Region | 112 |

**PART X STATISTICAL DISTRIBUTION COMPARISON  
OF OBSERVED DEPOSITION**

|                     |     |
|---------------------|-----|
| Central Region      | 113 |
| Northwestern Region | 114 |
| Southeastern Region | 115 |
| Southwestern Region | 116 |

PART I  
INTRODUCTION

## INTRODUCTION

The graphical and statistical summaries presented in this report pertain to the 1981 analytical results obtained from the Acidic Precipitation in Ontario Study (APIOS) daily precipitation monitoring network. The relevant data are listed in a previous report #ARB-19a-82-ARSP. All available data are utilized with the following modifications. Results reported as being unreliable or approximate are not included in the calculations. If it is noted that the actual result is greater than the reported value due to exceedance of upper limit, then the reported value is also excluded. If a detection limit is reported, a value corresponding to one half the detection limit is utilized for statistical calculations as reported in the statistical summaries. The reported precipitation gauge depth (standard rain gauge or nipher shielded snow gauge) is utilized in the calculation of deposition. If a rain gauge value is not available then the collected sample volume is converted to its equivalent precipitation depth and is used in the deposition calculation.

The Bar/Stem.Leaf charts presented in Parts III and IV are obtained from the SAS (Statistical Analysis System) Univariate procedure, SAS User's Guide 1979 Edition. The charting procedure optimizes as to what chart type to produce. Optimization is based upon sample size and range. The Stem.Leaf chart is the preferred type since it has the advantage of presenting more significant figures than the Bar chart. The Bar charts are self explanatory. The Stem.Leaf charts may best be explained by an elementary example.

Example of Stem.Leaf Chart: Conductance umho/cm

| Stem | Leaf                          | #  |
|------|-------------------------------|----|
| 2    | <u>555556666778999</u>        | 15 |
|      | multiply stem.leaf by 10***01 |    |

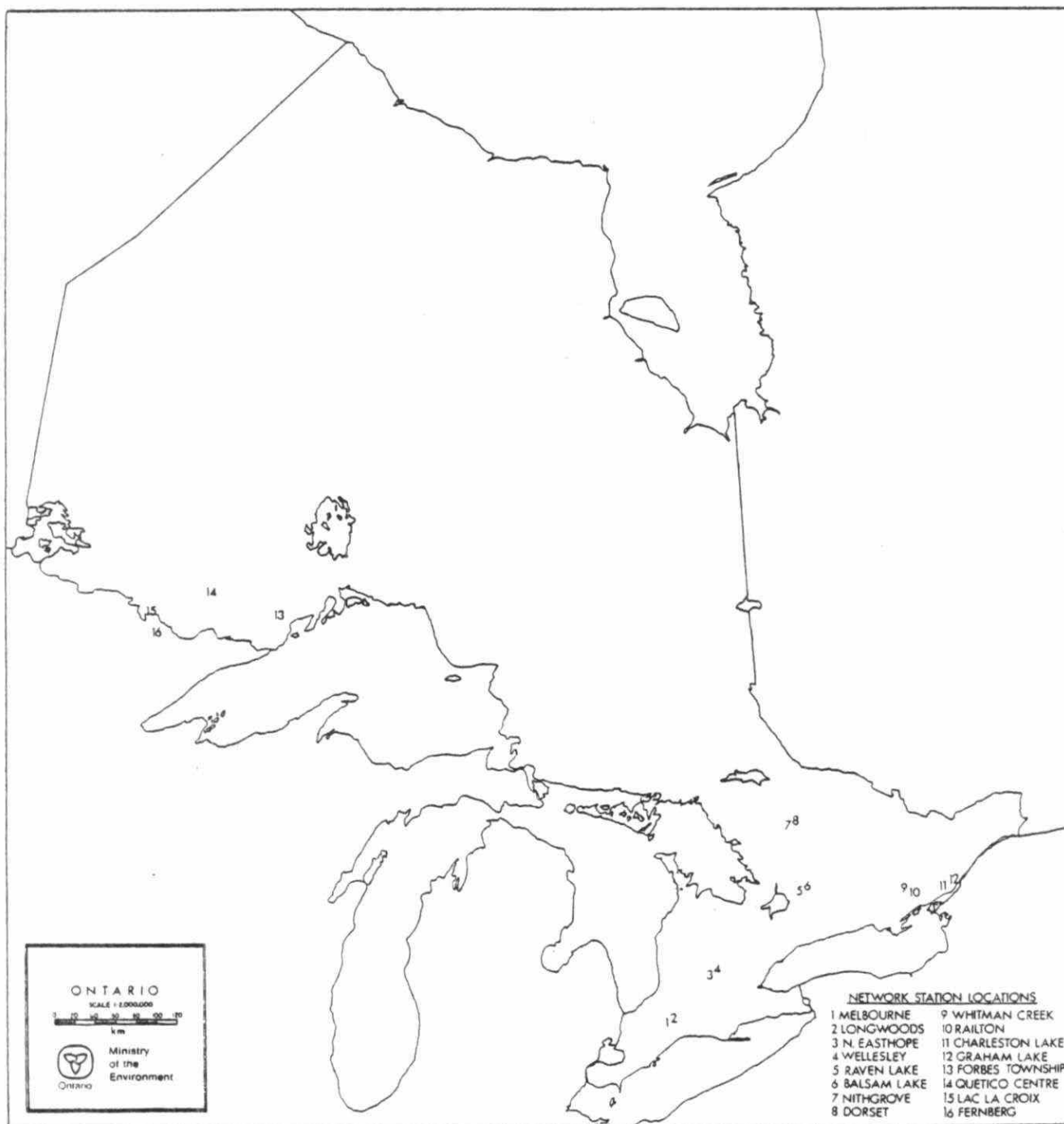
This chart would be interpreted as follows: of the 15 reported values, 5 results are equal to  $2.5 \times 10$  umho/cm, 4 results are equal  $2.6 \times 10$  umho/cm, 2 results are equal  $2.7 \times 10$  umho/cm, 1 result is equal  $2.8 \times 10$  umho/cm and 3 results are equal  $2.9 \times 10$  umho/cm. It should be noted however that all the original significant figures may not be represented.

The statistical summaries presented in Parts V to VIII include mean (arithmetic/geometric), standard deviation (arithmetic/geometric), sample size, maximum, minimum, quartiles and volume weighted averages using precipitation gauge depths where appropriate. Users may assess the meaning of the statistical summaries in light of the sample distributions given in Parts IX and X.

The distribution of the observed concentrations and depositions is examined by calculating the skewness, kurtosis and D-statistic of the observed results and log-transformed observed results. Ideal skewness and kurtosis for a normal distribution are 0 and 3 respectively. Skewness is considered to be significant if calculated to be less than -1 or greater than +1. The Kolomogorov-Smirnov D-statistic is calculated and compared to a critical value. If the D-statistic exceeds the critical value then the null hypothesis of normality is rejected. In this report, the 95% confidence level is used. Note that, according to this analysis, with the exception of the soil-related substances, few of the measured parameters are normally distributed, even when the values are log-transformed.

PART II

STATION DESCRIPTION AND LOCATION MAP



APIOS EVENT DEPOSITION NETWORK SITE LOCATIONS

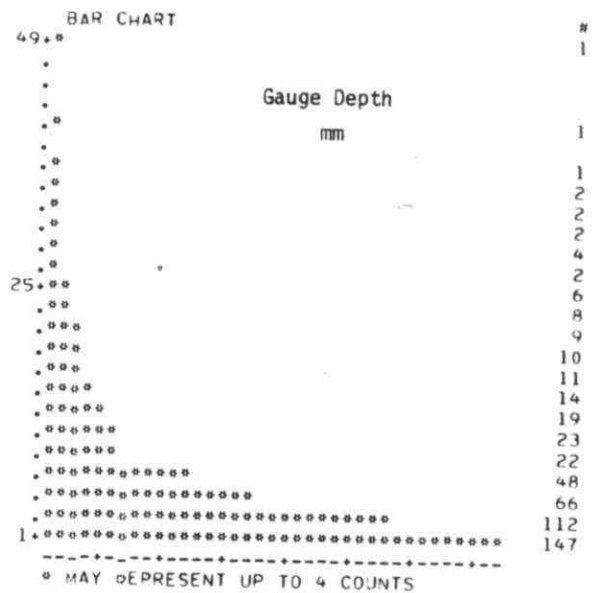
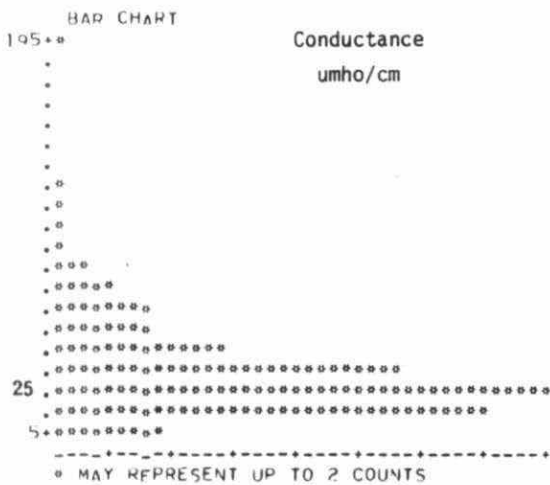
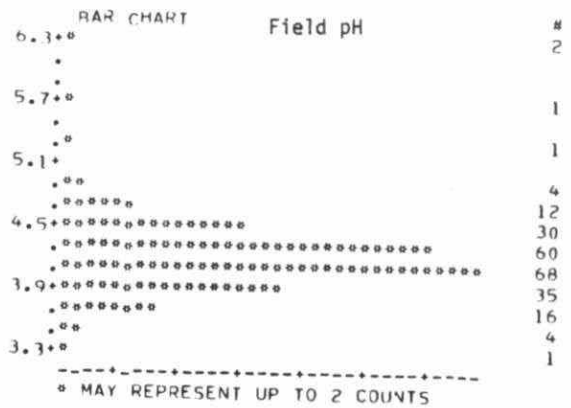
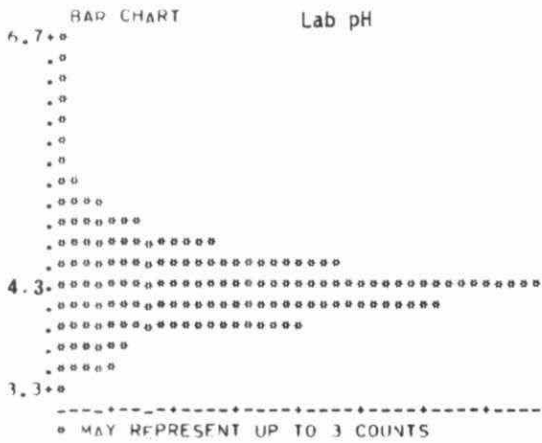
| AREA        | MOE REGION   | STATION NAME                    | ELEVATION<br>(m above MSL) | LATITUDE<br>(North) | LONGITUDE<br>(West) | UTM COORDINATES<br>(Northing) (Easting) |        |
|-------------|--------------|---------------------------------|----------------------------|---------------------|---------------------|---|--------|
| London      | Southwestern | Longwoods Conservations Area    | 239                        | 42°53'              | 81°29'              | 4747850                                 | 460700 |
|             |              | Melbourne                       | 213                        | 42°47'              | 81°33'              | 4736850                                 | 454600 |
|             |              | North Easthope                  | 375                        | 43°24'              | 80°53'              | 4805650                                 | 508650 |
|             |              | Wellesley                       | 344                        | 43°28'              | 80°46'              | 4812650                                 | 519500 |
| Dorset      | Central      | Dorset Lab                      | 320                        | 45°13'              | 78°56'              | 5009600                                 | 662450 |
|             |              | Nithgrove                       | 325                        | 45°12'              | 79°04'              | 5006800                                 | 651600 |
|             |              | Balsam Lake Provincial Park     | 259                        | 44°38'              | 78°51'              | 4943400                                 | 670070 |
|             |              | Raven Lake                      | 274                        | 44°37'              | 78°54'              | 4941600                                 | 665750 |
| Kingston    | Southeastern | Charleston Lake Provincial Park | 92                         | 44°30'              | 76°03'              | 4927500                                 | 417150 |
|             |              | Graham Lake                     | 130                        | 44°35'              | 75°52'              | 4936750                                 | 431450 |
|             |              | Railton                         | 137                        | 44°29'              | 76°49'              | 4927200                                 | 355100 |
|             |              | Whitman Creek                   | 137                        | 44°29'              | 76°49'              | 4927200                                 | 355100 |
| Thunder Bay | Northwestern | Fernberg                        | 506                        | 47°50'              | 91°52'              | 5316000                                 | 585000 |
|             |              | Lac la Croix                    | 368                        | 48°21'              | 92°12'              | 5356000                                 | 558200 |
|             |              | Forbes Twsp.                    | 324                        | 48°38'              | 89°37'              | 5388000                                 | 308000 |
|             |              | Quetico Centre                  | 420                        | 48°45'              | 91°12'              | 5399000                                 | 632000 |

PART III

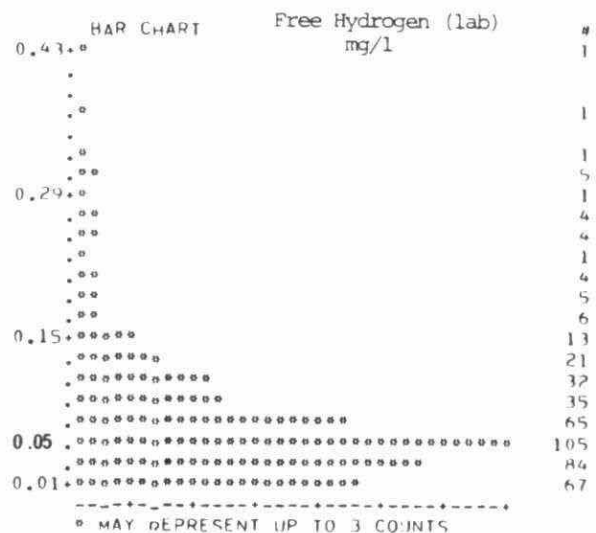
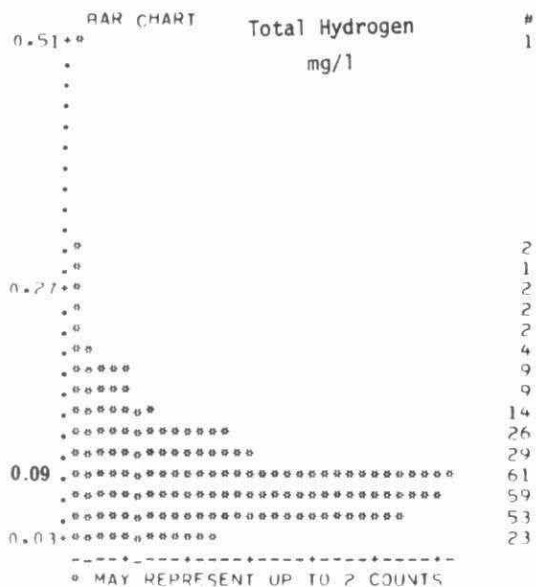
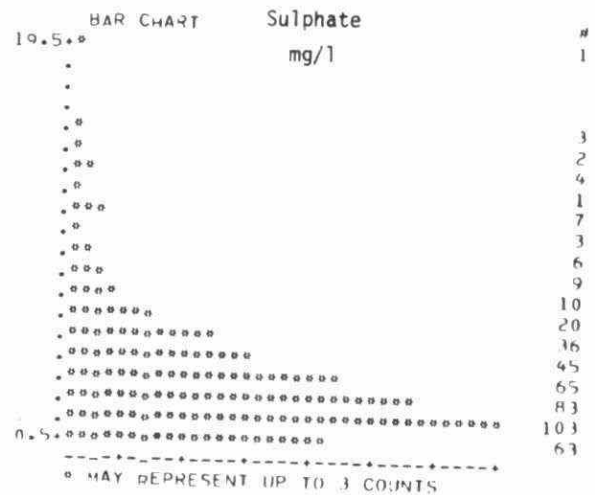
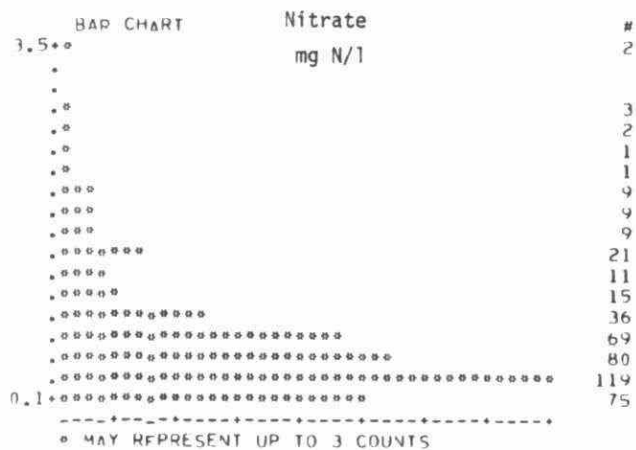
BAR/STEM.LEAF CHARTS OF OBSERVED CONCENTRATION BY REGION



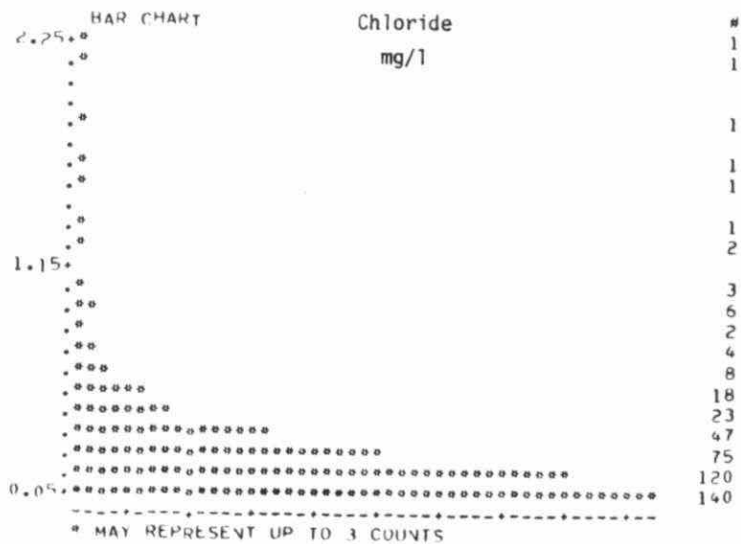
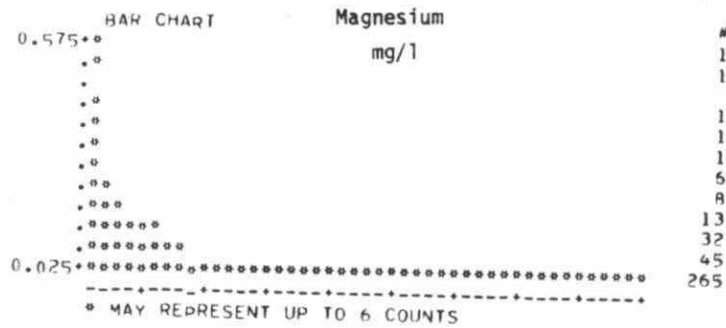
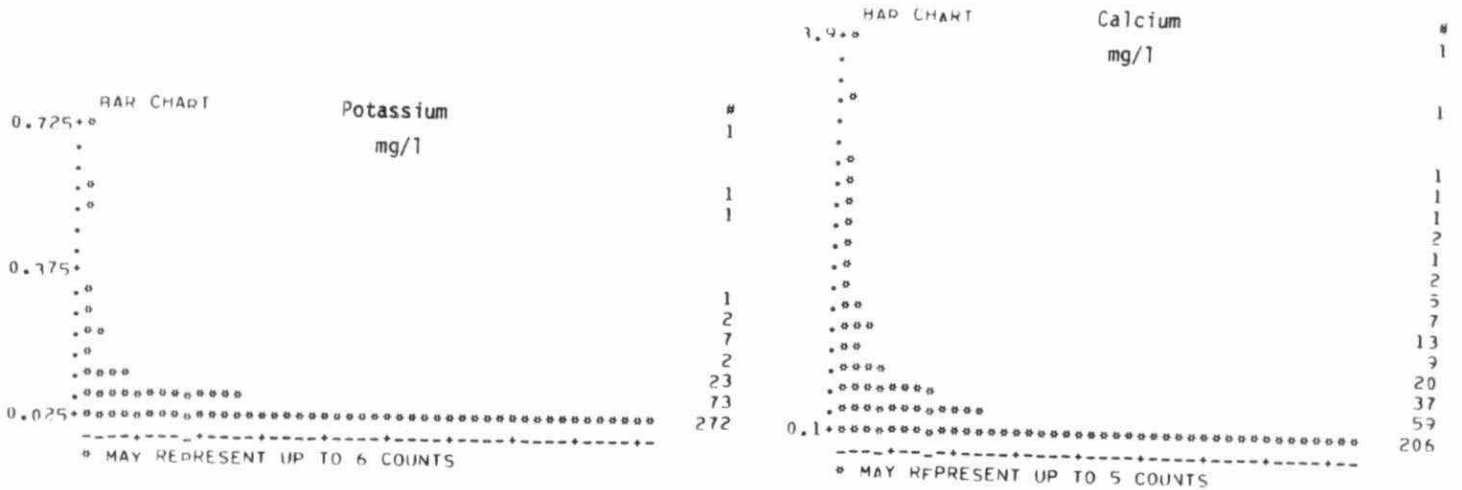
BAR/STEM.LEAF CHARTS OF OBSERVED CONCENTRATION  
CENTRAL REGION



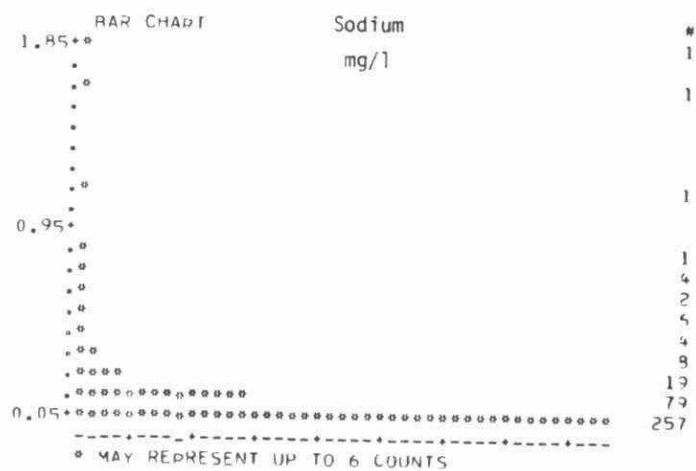
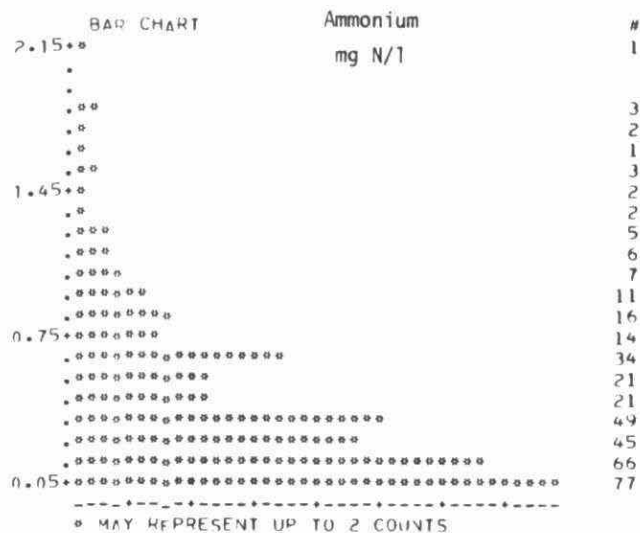
BAR/STEM-LEAF CHARTS OF OBSERVED CONCENTRATION  
CENTRAL REGION



BAR/STEM-LEAF CHARTS OF OBSERVED CONCENTRATION  
CENTRAL REGION



BAR/STEM-LEAF CHARTS OF OBSERVED CONCENTRATION  
CENTRAL REGION



BAR/STEM.LEAF CHARTS OF OBSERVED CONCENTRATION  
NORTHWESTERN REGION

| STEM   LEAF    | Lab pH | #  |
|----------------|--------|----|
| 59 8           |        | 1  |
| 58             |        |    |
| 57             |        |    |
| 56             |        |    |
| 55 2           |        | 1  |
| 54             |        |    |
| 53 29          |        | 2  |
| 52             |        |    |
| 51 268         |        | 3  |
| 50 00233678    |        | 8  |
| 49 027         |        | 3  |
| 48 1233478     |        | 7  |
| 47 03444599    |        | 8  |
| 46 01122267888 |        | 11 |
| 45 045         |        | 3  |
| 44 12467777889 |        | 11 |
| 43 03333467888 |        | 11 |
| 42 113457789   |        | 9  |
| 41 1124778889  |        | 10 |
| 40             |        |    |
| 39 00          |        | 2  |
| 38 22          |        | 2  |
| 37 6           |        | 1  |
| 36             |        |    |
| 35 6           |        | 1  |

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MULTIPLY STEM.LEAF BY 10\*\*-01

| STEM   LEAF         | Conductance<br>umho/cm | #  |
|---------------------|------------------------|----|
| 11 9                |                        | 1  |
| 11                  |                        |    |
| 10                  |                        |    |
| 10                  |                        |    |
| 9                   |                        |    |
| 9                   |                        |    |
| 8                   |                        |    |
| 8                   |                        |    |
| 7                   |                        |    |
| 7 4                 |                        | 1  |
| 6                   |                        |    |
| 6 2                 |                        | 1  |
| 5                   |                        |    |
| 5                   |                        |    |
| 4                   |                        |    |
| 4                   |                        |    |
| 3                   |                        |    |
| 3 114               |                        | 3  |
| 2 55556             |                        | 5  |
| 2 0122233444        |                        | 10 |
| 1 5566789           |                        | 7  |
| 1 000012222334      |                        | 12 |
| 0 55566667777888999 |                        | 16 |
| 0 4                 |                        | 1  |

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MULTIPLY STEM.LEAF BY 10\*\*+01

| STEM   LEAF | Field pH | # |
|-------------|----------|---|
| 52 0        |          | 1 |
| 50 056      |          | 3 |
| 48 42       |          | 2 |
| 46 2        |          | 1 |
| 44 045      |          | 3 |
| 42 095579   |          | 6 |
| 40 7        |          | 1 |
| 38 1        |          | 1 |

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MULTIPLY STEM.LEAF BY 10\*\*-01

| STEM   LEAF                             | Gauge Depth<br>mm | #  |
|---|-------------------|----|
| 18 9                                    |                   | 1  |
| 17                                      |                   |    |
| 16                                      |                   |    |
| 15 06                                   |                   | 2  |
| 14 02                                   |                   | 2  |
| 13 19                                   |                   | 2  |
| 12 0008                                 |                   | 4  |
| 11                                      |                   |    |
| 10 0                                    |                   | 1  |
| 9                                       |                   |    |
| 8                                       |                   |    |
| 7 0599                                  |                   | 4  |
| 6 9                                     |                   | 1  |
| 5 05579999                              |                   | 8  |
| 4 0000237                               |                   | 7  |
| 3 022224889                             |                   | 9  |
| 2 023466688                             |                   | 9  |
| 1 000002222334666779                    |                   | 18 |
| 0 1111122223333444455555566777788888899 |                   | 39 |

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BAR/STEM.LEAF CHARTS OF OBSERVED CONCENTRATION  
NORTHWESTERN REGION

| STEM                          | LEAF                            | Nitrate | #  |
|-------------------------------|---------------------------------|---------|----|
| 34                            | 7                               |         | 1  |
| 32                            |                                 | mg N/l  |    |
| 30                            |                                 |         |    |
| 28                            |                                 |         |    |
| 26                            | 0                               |         | 1  |
| 24                            |                                 |         |    |
| 22                            |                                 |         |    |
| 20                            |                                 |         |    |
| 18                            | 86                              |         | 2  |
| 16                            |                                 |         |    |
| 14                            |                                 |         |    |
| 12                            |                                 |         |    |
| 10                            |                                 |         |    |
| 8                             | 15689                           |         | 5  |
| 6                             | 1178122467                      |         | 10 |
| 4                             | 034822344568                    |         | 12 |
| 2                             | 001222345557789900233569        |         | 24 |
| 0                             | 0012467789001112223333466677889 |         | 31 |
| -----                         |                                 |         |    |
| MULTIPLY STEM.LEAF BY 10**-01 |                                 |         |    |

| STEM                          | LEAF                            | Free Hydrogen (lab) | #  |
|-------------------------------|---------------------------------|---------------------|----|
| 26                            | 5                               | mg/l                | 1  |
| 24                            |                                 |                     |    |
| 22                            |                                 |                     |    |
| 20                            |                                 |                     |    |
| 18                            |                                 |                     |    |
| 16                            | 4                               |                     | 1  |
| 14                            | 11                              |                     | 2  |
| 12                            | 66                              |                     | 2  |
| 10                            |                                 |                     |    |
| 8                             |                                 |                     |    |
| 6                             | 225666882688                    |                     | 12 |
| 4                             | 222346777701244689              |                     | 18 |
| 2                             | 01111244455589223344445689      |                     | 26 |
| 0                             | 1345778899990001233345556688889 |                     | 32 |
| -----                         |                                 |                     |    |
| MULTIPLY STEM.LEAF BY 10**-02 |                                 |                     |    |

| STEM  | LEAF  | Sulphate | #  |
|-------|---|----------|----|
| 14    | 0   | mg/l     | 1  |
| 13    | 3   |          | 1  |
| 12    |   |          |    |
| 11    |   |          |    |
| 10    |   |          |    |
| 9     |   |          |    |
| 8     | 37  |          | 2  |
| 7     | 6   |          | 1  |
| 6     | 5   |          | 1  |
| 5     | 1   |          | 1  |
| 4     |   |          |    |
| 3     | 145   |          | 3  |
| 2     | 33344   |          | 5  |
| 1     | 00012222333457777888899                       |          | 23 |
| 0     | 111111112222233333334444455566667777888888899 |          | 48 |
| ----- |   |          |    |

| STEM                          | LEAF    | Total Hydrogen | # |
|-------------------------------|---------|----------------|---|
| 10                            | 7       | mg/l           | 1 |
| 10                            |         |                |   |
| 9                             | 89      |                | 2 |
| 9                             | 000234  |                | 6 |
| 8                             | 57      |                | 2 |
| 8                             | 123     |                | 3 |
| 7                             | 588     |                | 3 |
| 7                             | 23      |                | 2 |
| 6                             | 88      |                | 2 |
| 6                             | 12234   |                | 5 |
| 5                             | 567     |                | 3 |
| 5                             | 0001334 |                | 7 |
| 4                             | 55889   |                | 5 |
| 4                             | 12      |                | 2 |
| 3                             | 6899    |                | 4 |
| 3                             | 34      |                | 2 |
| -----                         |         |                |   |
| MULTIPLY STEM.LEAF BY 10**-02 |         |                |   |

BAR/STEM.LEAF CHARTS OF OBSERVED CONCENTRATION  
NORTHWESTERN REGION

| STEM LEAF                        | Potassium | #  | STEM LEAF                                | Magnesium | #  |
|----------------------------------|-----------|----|--|-----------|----|
| 32 0                             | mg/l      | 1  | 15 5                                     | mg/l      | 1  |
| 30                               |           |    | 14 5                                     |           | 1  |
| 28 0                             |           | 1  | 13                                       |           |    |
| 26                               |           |    | 12                                       |           |    |
| 24                               |           |    | 11                                       |           |    |
| 22                               |           |    | 10                                       |           |    |
| 20                               |           |    | 9  |           |    |
| 18 0                             |           | 1  | 8  |           |    |
| 16                               |           |    | 7 5                                      |           | 1  |
| 14 0                             |           | 1  | 6  |           |    |
| 12 0                             |           | 1  | 5 05                                     |           | 2  |
| 10 0                             |           | 1  | 4 0055                                   |           | 4  |
| 8                                |           |    | 3 0                                      |           | 1  |
| 6 00000                          |           | 5  | 2 005                                    |           | 3  |
| 4 0000000000                     |           | 10 | 1 000000000055555                        |           | 16 |
| 2 00000000000000000000           |           | 22 | 0 22222222222222222222222222225555555555 |           | 40 |
| 0 555555555555555500000000000000 |           | 26 |  |           |    |
| MULTIPLY STEM.LEAF BY 10**-02    |           |    | MULTIPLY STEM.LEAF BY 10**-02            |           |    |

| STEM LEAF                                      | Calcium | #  |
|--|---------|----|
| 14 5   | mg/l    | 1  |
| 13   |         |    |
| 12   |         |    |
| 11   |         |    |
| 10   |         |    |
| 9  |         |    |
| 8  |         |    |
| 7 1  |         | 1  |
| 6  |         |    |
| 5  |         |    |
| 4 0005   |         | 4  |
| 3 28   |         | 2  |
| 2 02799  |         | 5  |
| 1 0044445567                                   |         | 10 |
| 0 00001122222223333344445555556666667777888889 |         | 46 |
| MULTIPLY STEM.LEAF BY 10**-01                  |         |    |

| STEM LEAF                                | Chloride | #  |
|--|----------|----|
| 6 0                                      | mg/l     | 1  |
| 5  |          |    |
| 5 2                                      |          | 1  |
| 4  |          |    |
| 4 2                                      |          | 1  |
| 3 89                                     |          | 2  |
| 3 2                                      |          | 1  |
| 2  |          |    |
| 2 222344                                 |          | 6  |
| 1 55566                                  |          | 5  |
| 1 001112244444                           |          | 12 |
| 0 55556666777778888899999                |          | 22 |
| 0 00000000000000000011222223444444444444 |          | 36 |
| MULTIPLY STEM.LEAF BY 10**-01            |          |    |

BAR/STEM.LEAF CHARTS OF OBSERVED CONCENTRATION  
NORTHWESTERN REGION

| STEM | LEAF                    | Ammonium | #  |
|------|-------------------------|----------|----|
| 25   | 0                       | mg N/l   | 1  |
| 24   |                         |          |    |
| 23   |                         |          |    |
| 22   |                         |          |    |
| 21   |                         |          |    |
| 20   |                         |          |    |
| 19   |                         |          |    |
| 18   |                         |          |    |
| 17   |                         |          |    |
| 16   |                         |          |    |
| 15   |                         |          |    |
| 14   |                         |          |    |
| 13   |                         |          |    |
| 12   |                         |          |    |
| 11   | 8                       |          | 1  |
| 10   | 0                       |          | 1  |
| 9    | 1                       |          | 1  |
| 8    |                         |          |    |
| 7    | 4                       |          | 1  |
| 6    |                         |          |    |
| 5    | 35                      |          | 2  |
| 4    | 6                       |          | 1  |
| 3    | 133569                  |          | 6  |
| 2    | 001456666666779         |          | 15 |
| 1    | 01112244555667          |          | 14 |
| 0    | 00011111123455566778999 |          | 24 |

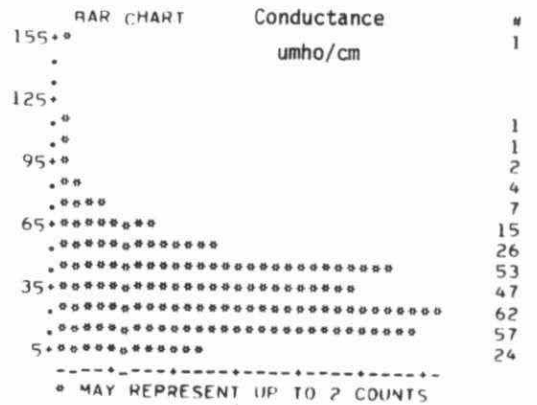
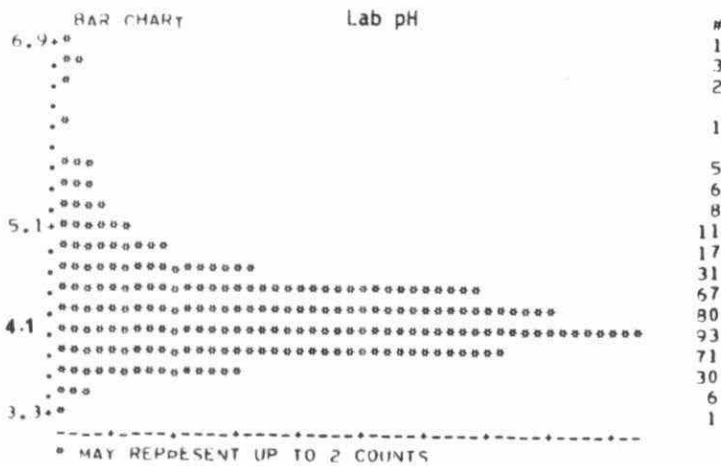
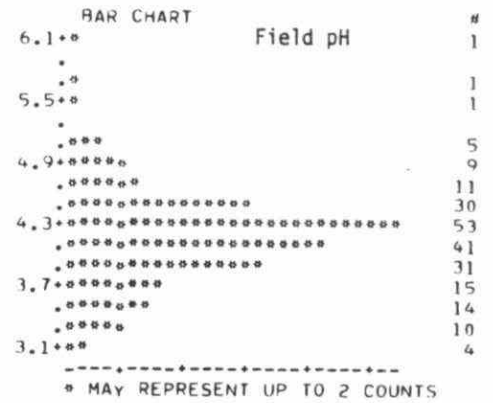
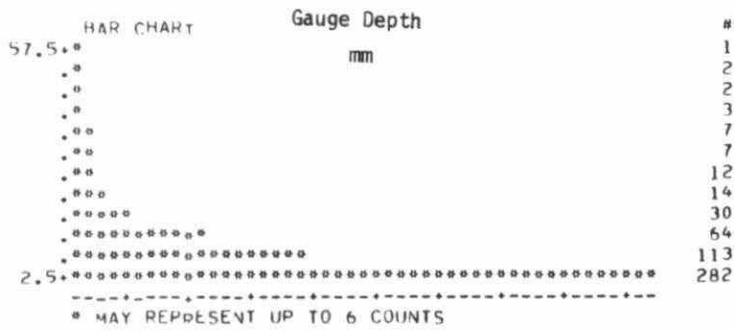
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MULTIPLY STEM.LEAF BY 10\*\*-01

| STEM | LEAF               | Sodium | #  |
|------|--------------------|--------|----|
| 42   | 0                  | mg/l   | 1  |
| 40   |                    |        |    |
| 38   |                    |        |    |
| 36   |                    |        |    |
| 34   |                    |        |    |
| 32   |                    |        |    |
| 30   |                    |        |    |
| 28   |                    |        |    |
| 26   |                    |        |    |
| 24   | 000                |        | 3  |
| 22   | 0                  |        | 1  |
| 20   | 00                 |        | 2  |
| 18   |                    |        |    |
| 16   | 00                 |        | 2  |
| 14   |                    |        |    |
| 12   | 000000             |        | 6  |
| 10   | 000                |        | 3  |
| 8    | 0000               |        | 4  |
| 6    | 0000000            |        | 7  |
| 4    | 000000             |        | 6  |
| 2    | 000000000000000000 |        | 18 |
| 0    | 5555000000000000   |        | 16 |

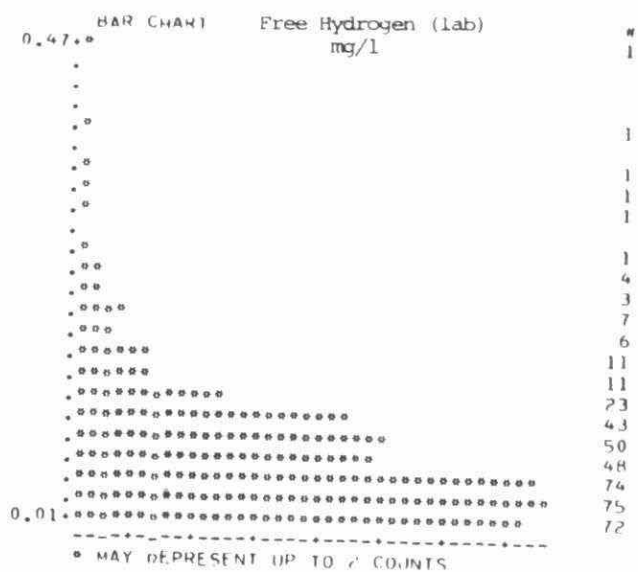
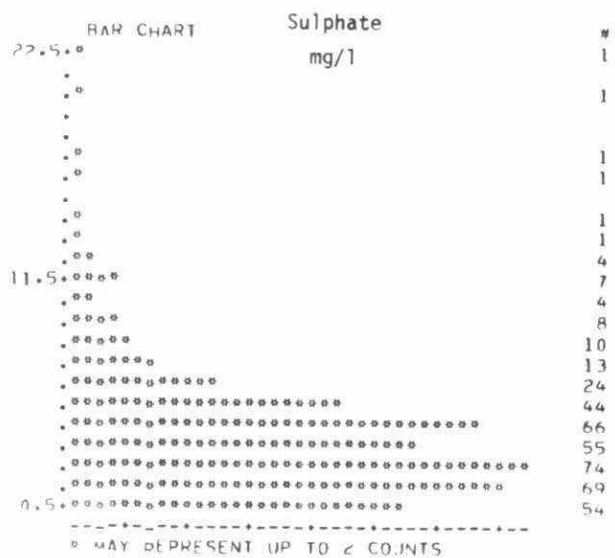
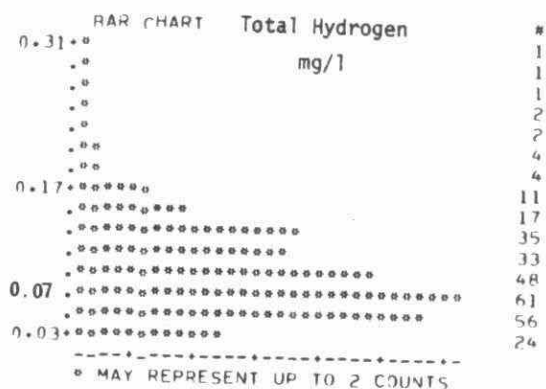
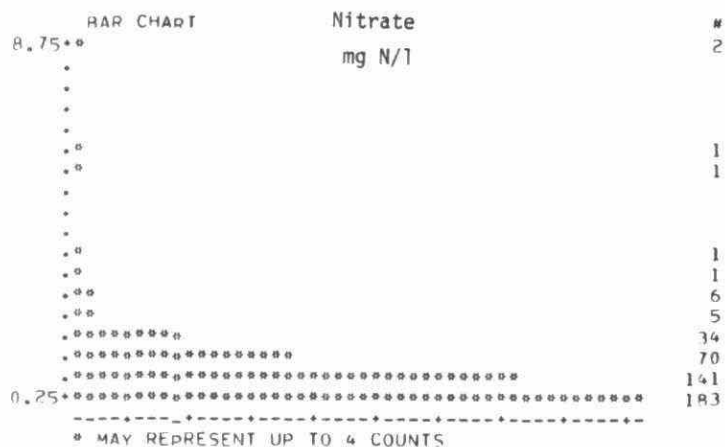
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MULTIPLY STEM.LEAF BY 10\*\*-02



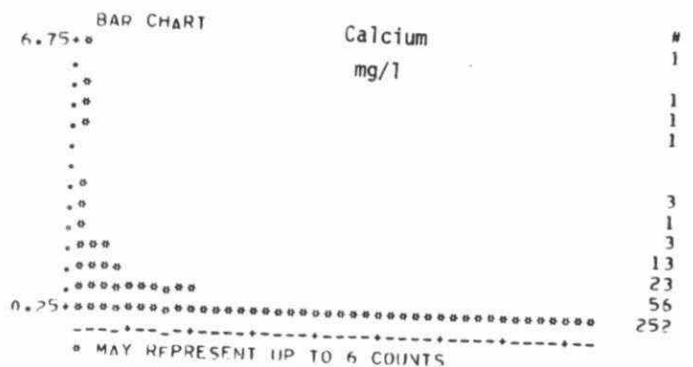
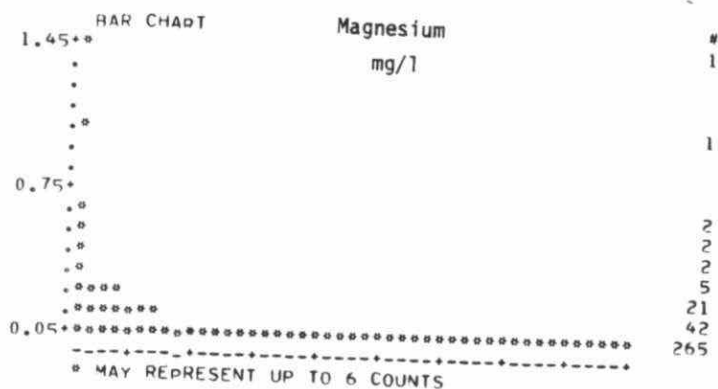
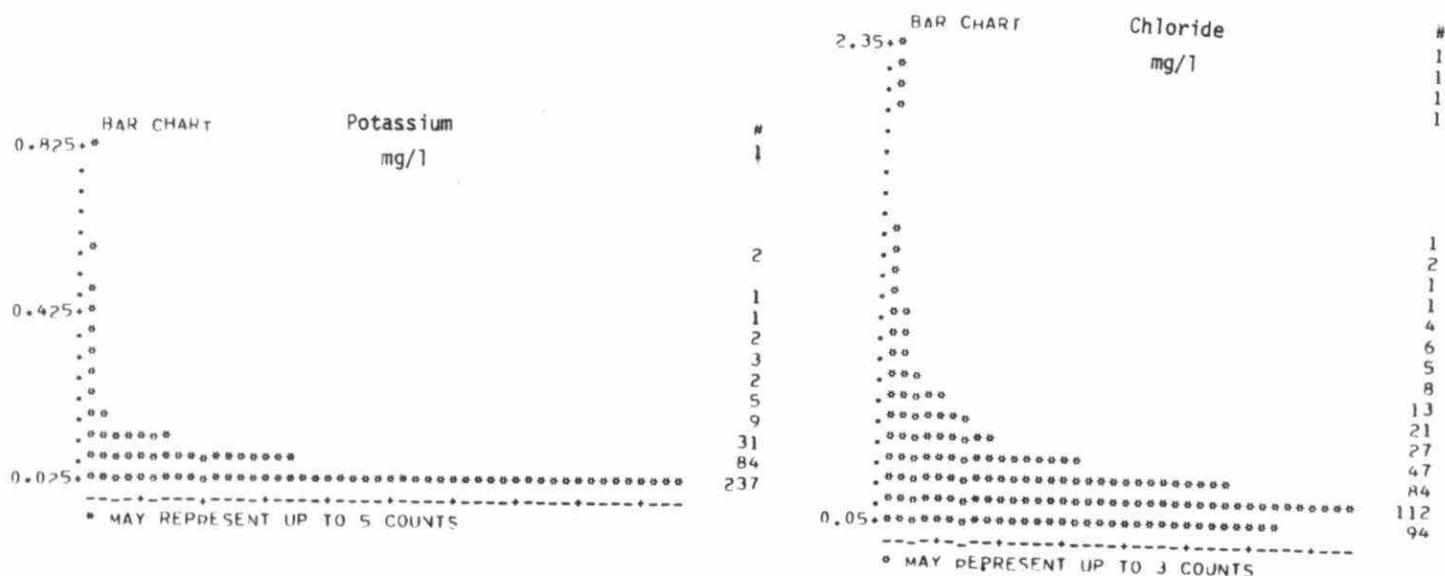
BAR/STEM.LEAF CHARTS OF OBSERVED CONCENTRATION  
SOUTHEASTERN REGION



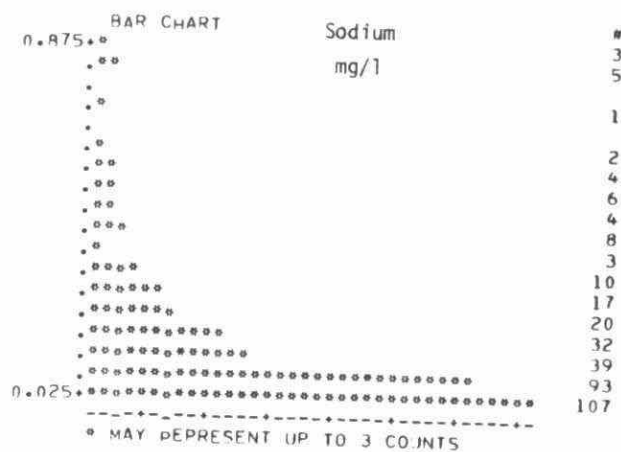
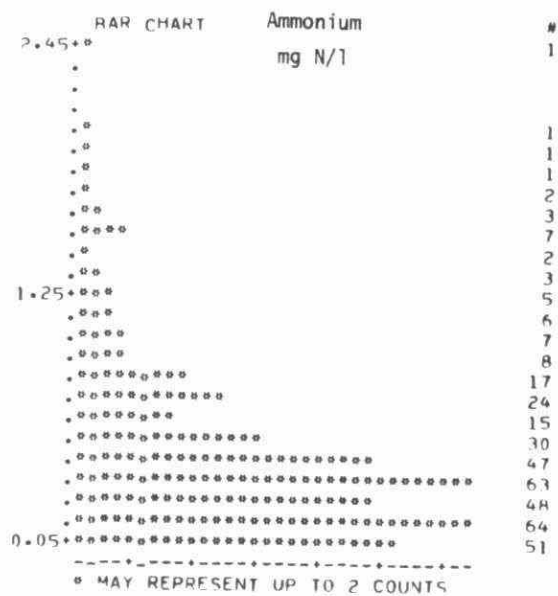
BAR/STEM.LEAF CHARTS OF OBSERVED CONCENTRATION  
SOUTHEASTERN REGION



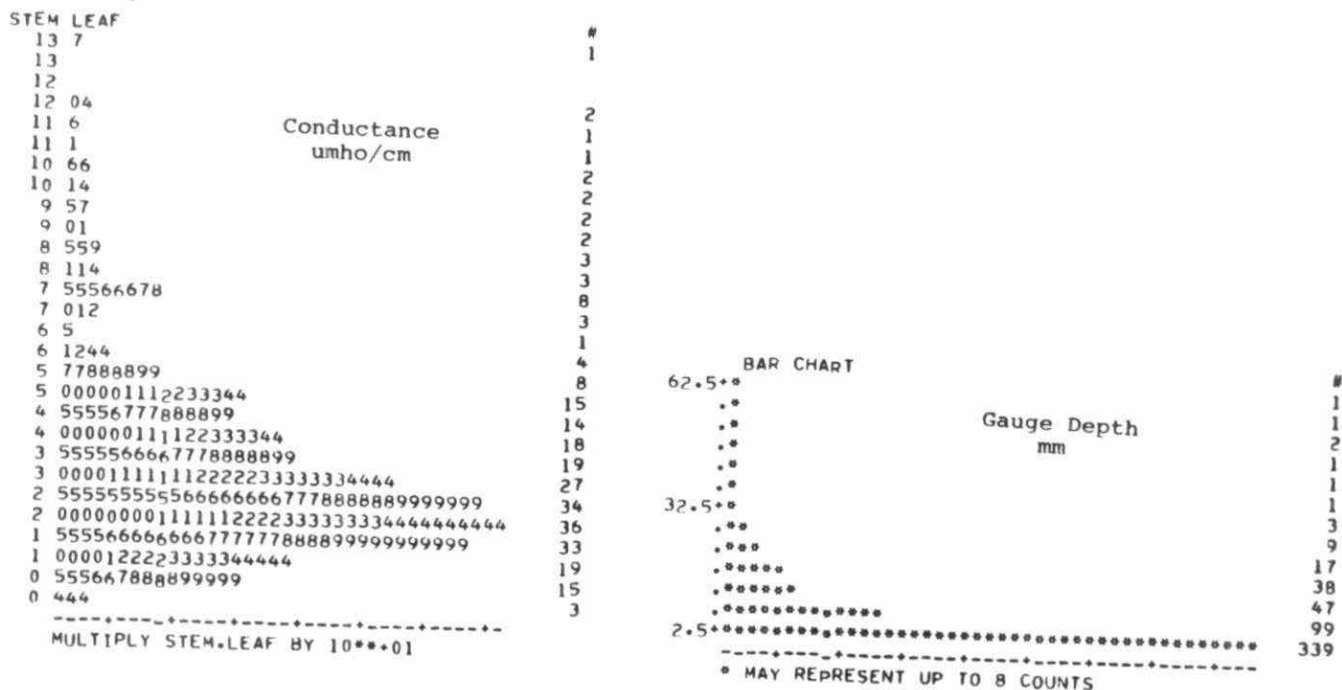
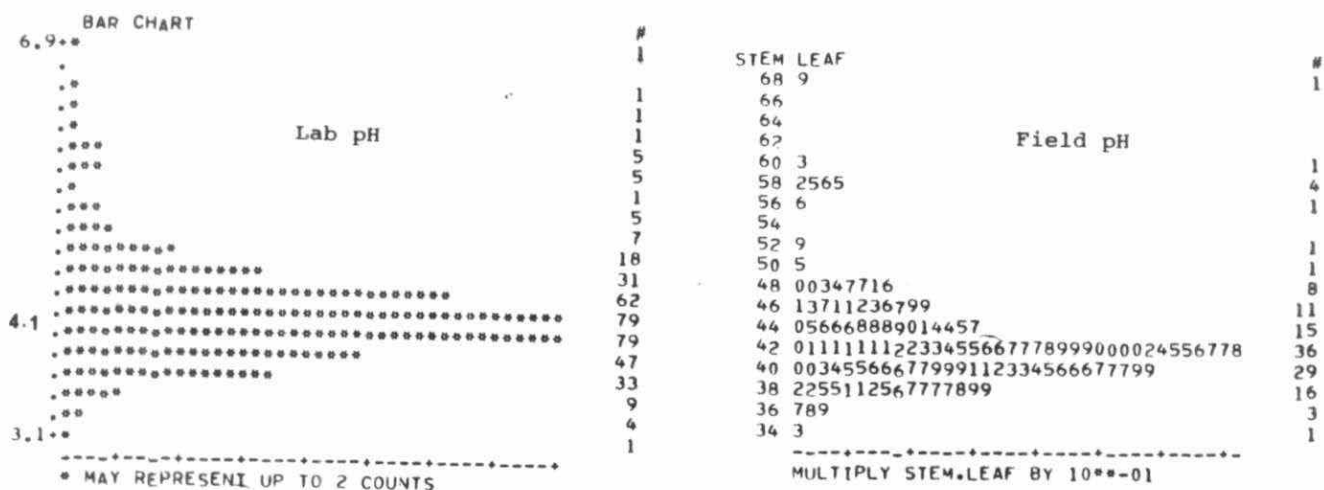
# BAR/STEM-LEAF CHARTS OF OBSERVED CONCENTRATION SOUTHEASTERN REGION



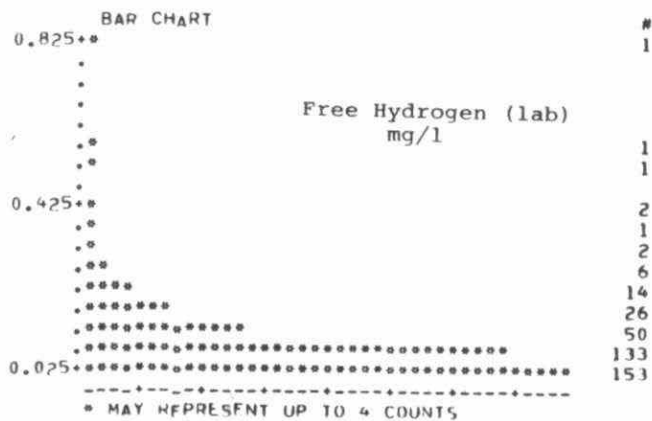
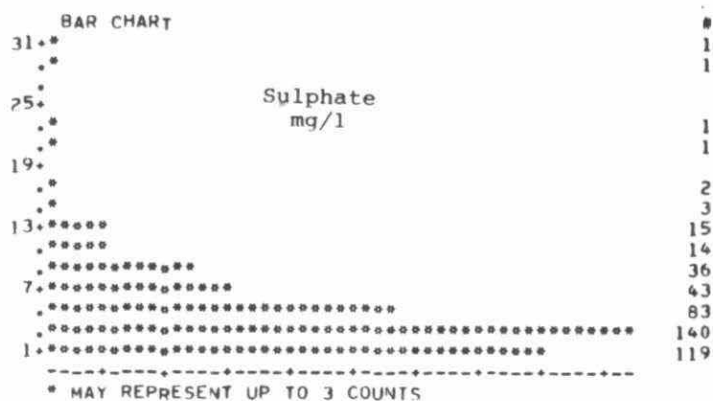
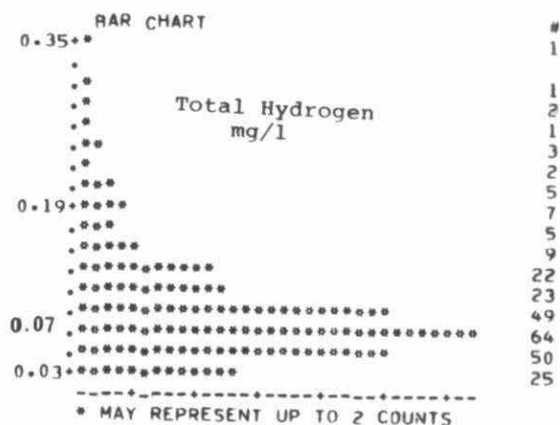
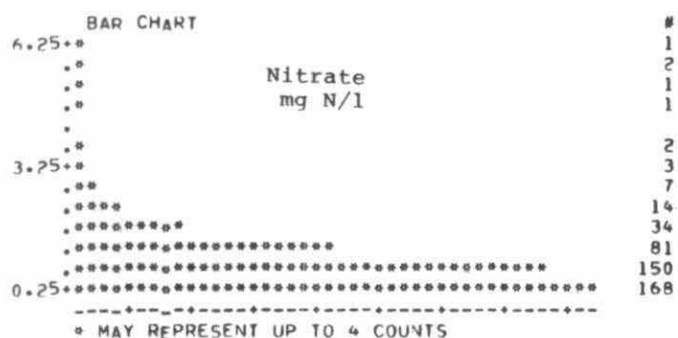
BAR/STEM.LEAF CHARTS OF OBSERVED CONCENTRATION  
SOUTHEASTERN REGION



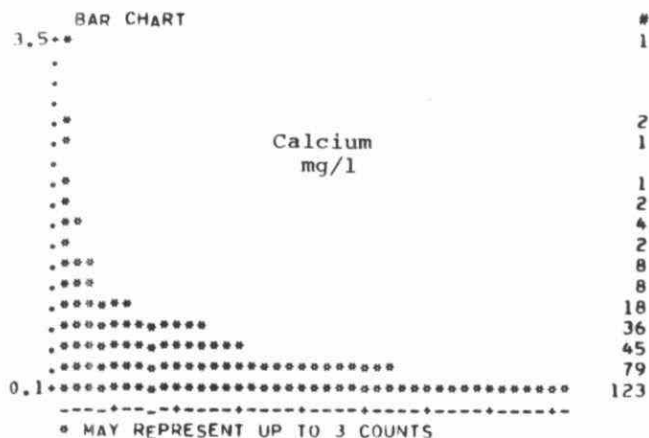
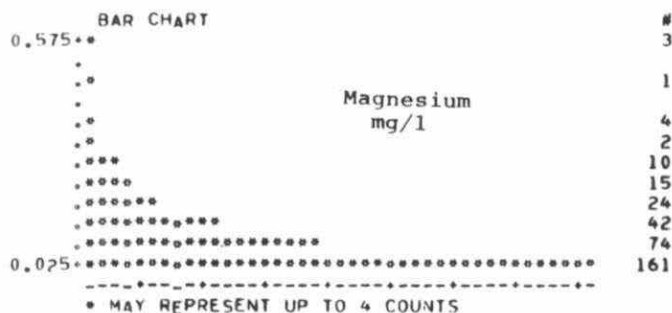
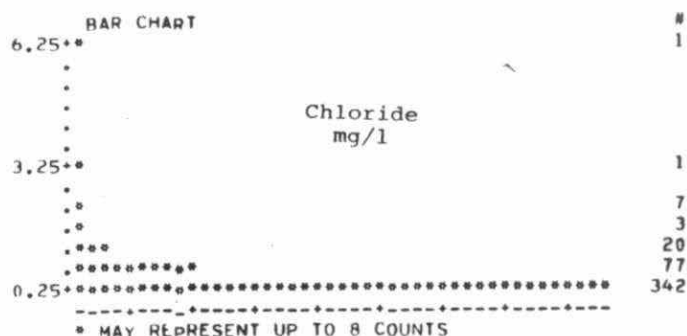
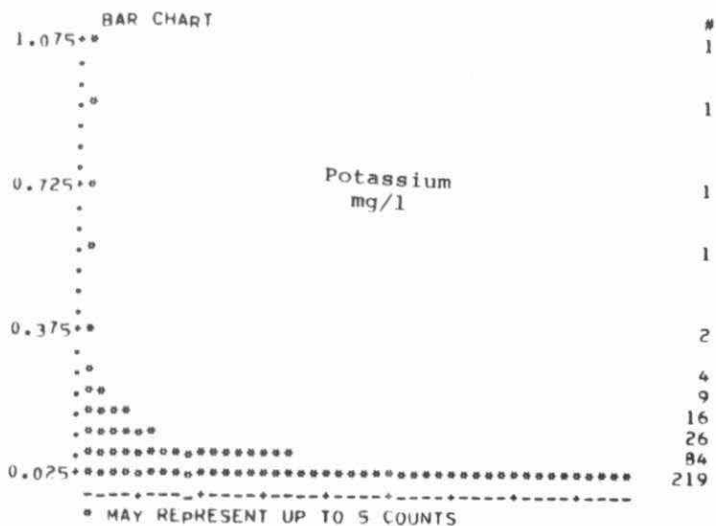
# BAR/STEM.LEAF CHARTS OF OBSERVED CONCENTRATION SOUTHWESTERN REGION



BAR/STEM.LEAF CHARTS OF OBSERVED CONCENTRATION  
SOUTHWESTERN REGION

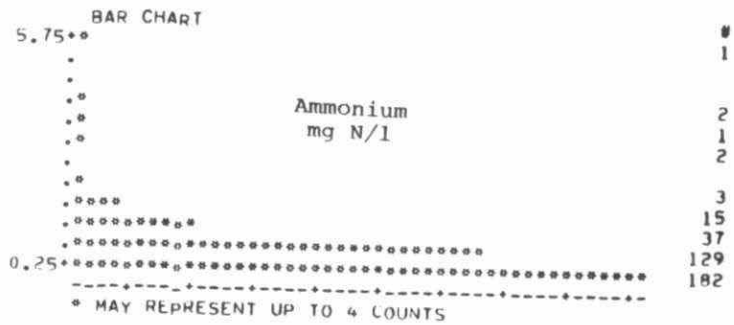
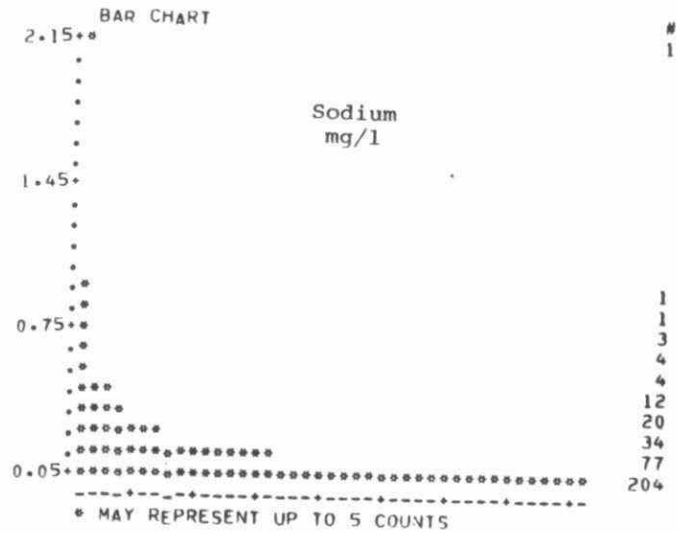


BAR/STEM.LEAF CHARTS OF OBSERVED CONCENTRATION  
SOUTHWESTERN REGION



BAR/STEM.LEAF CHARTS OF OBSERVED CONCENTRATION

SOUTHWESTERN REGION





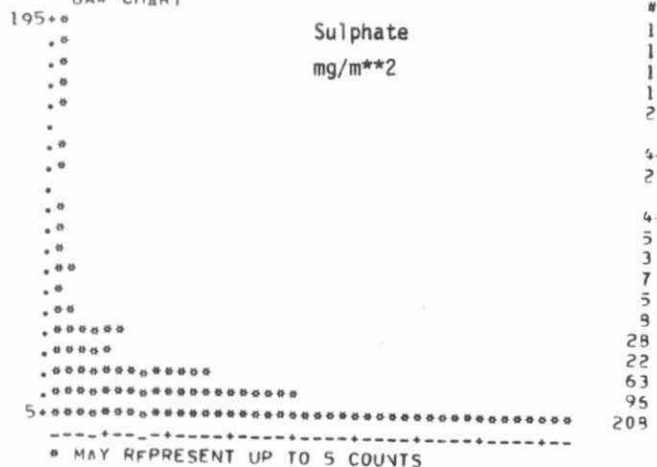
PART IV

BAR/STEM.LEAF CHARTS OF OBSERVED DEPOSITION BY REGION

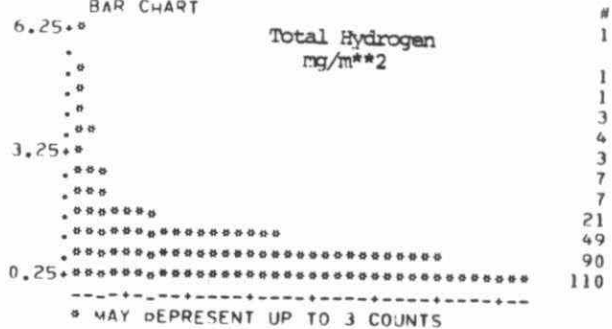


# BAR/STEM.LEAF CHARTS OF OBSERVED DEPOSITION CENTRAL REGION

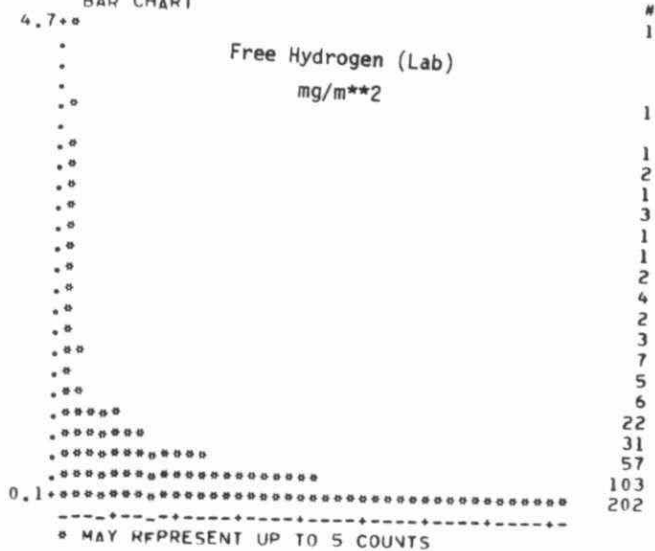
BAR CHART



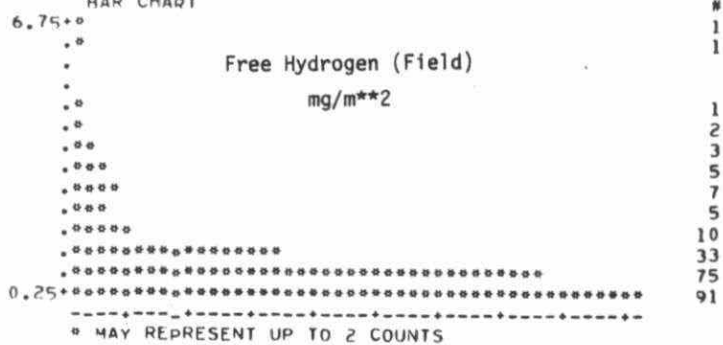
BAR CHART



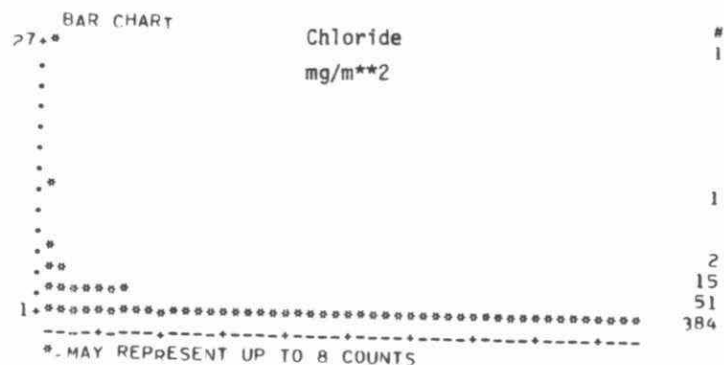
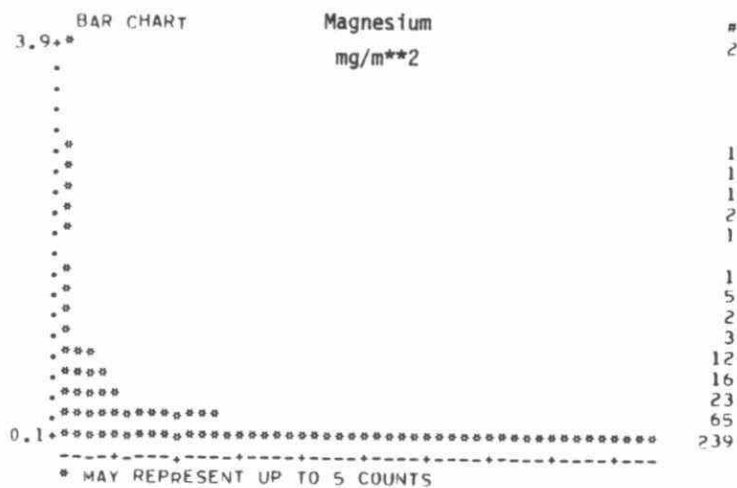
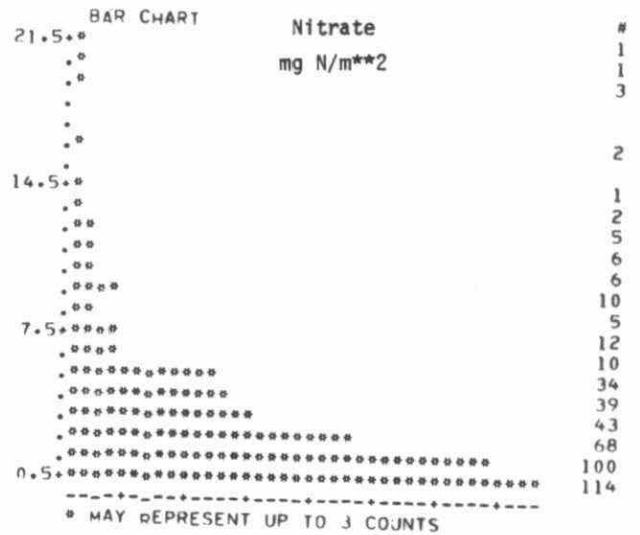
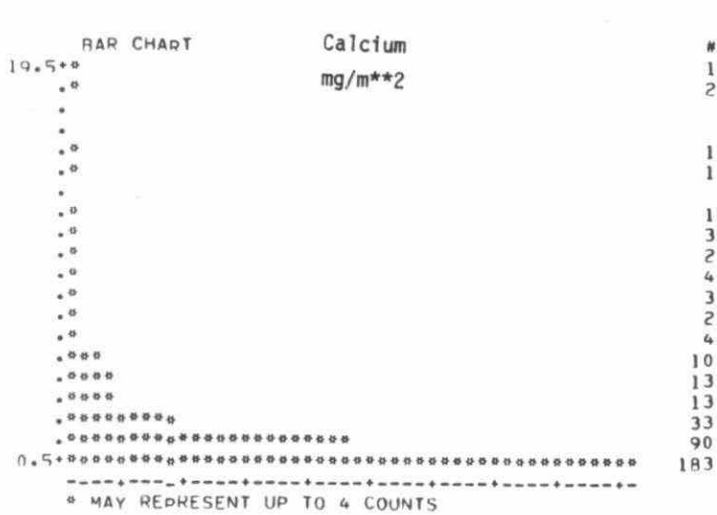
BAR CHART



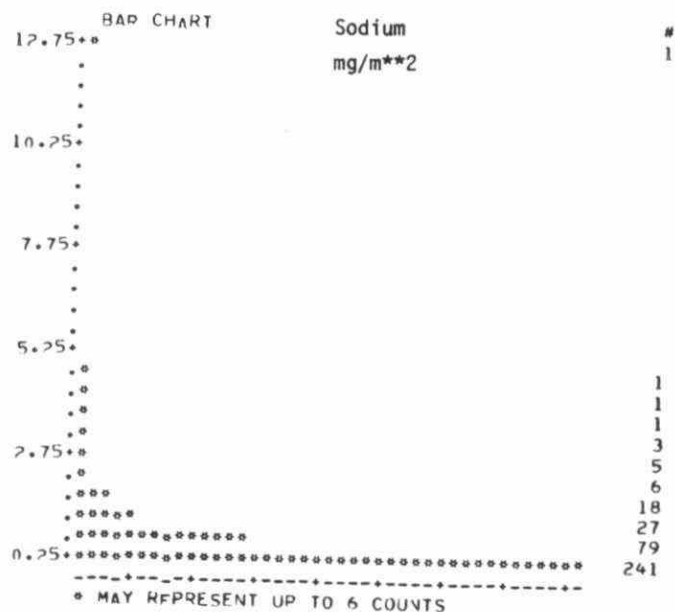
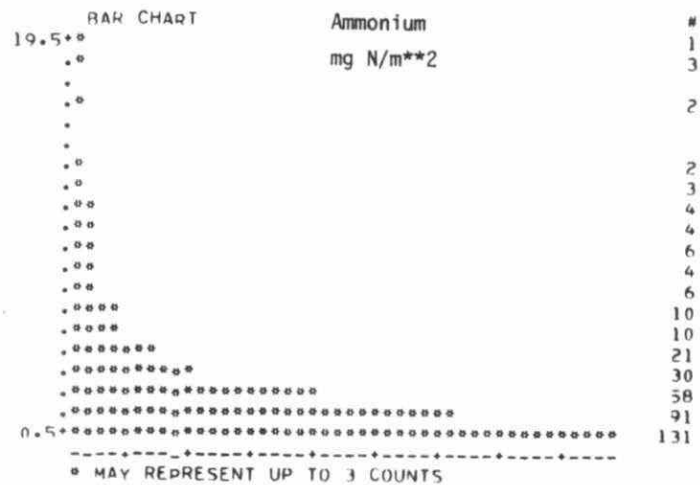
BAR CHART



BAR/STEM.LEAF CHARTS OF OBSERVED DEPOSITION  
CENTRAL REGION



BAR/STEM.LEAF CHARTS OF OBSERVED DEPOSITION  
CENTRAL REGION



BAR/STEM.LEAF CHARTS OF OBSERVED DEPOSITION  
NORTHWESTERN REGION

| STEM | LEAF                                      |          | #  |
|------|---|----------|----|
| 44   | 4   | Sulphate | 1  |
| 42   |   | mg/m**2  |    |
| 40   |   |          |    |
| 38   |   |          |    |
| 36   |   |          |    |
| 34   |   |          |    |
| 32   |   |          |    |
| 30   |   |          |    |
| 28   |   |          |    |
| 26   | 7   |          | 1  |
| 24   |   |          |    |
| 22   | 5   |          | 1  |
| 20   | 1   |          | 1  |
| 18   | 0   |          | 1  |
| 16   |   |          | 1  |
| 14   | 2   |          | 1  |
| 12   |   |          |    |
| 10   | 2999                                      |          | 4  |
| 8    | 0279                                      |          | 4  |
| 6    | 366026                                    |          | 6  |
| 4    | 2456846                                   |          | 7  |
| 2    | 234466780000222568                        |          | 18 |
| 0    | 00112222234444556666688890011122234455678 |          | 41 |

| STEM | LEAF          |                | #  |
|------|---------------|----------------|----|
| 17   | 6             | Total Hydrogen | 1  |
| 16   |               | mg/m**2        |    |
| 15   |               |                |    |
| 14   |               |                |    |
| 13   |               |                |    |
| 12   | 6             |                | 1  |
| 11   |               |                |    |
| 10   | 7             |                | 1  |
| 9    |               |                |    |
| 8    | 9             |                | 1  |
| 7    | 39            |                | 2  |
| 6    | 011           |                | 3  |
| 5    | 0139          |                | 4  |
| 4    | 2677          |                | 4  |
| 3    | 001269        |                | 6  |
| 2    | 00012224469   |                | 11 |
| 1    | 1223666888999 |                | 13 |
| 0    | 78            |                | 2  |

MULTIPLY STEM.LEAF BY 10\*\*-01

| STEM | LEAF                                   |                     | #  |
|------|--|---------------------|----|
| 10   | 6                                      | Free Hydrogen (Lab) | 1  |
| 10   |  | mg/m**2             |    |
| 9    |  |                     |    |
| 9    | 2                                      |                     | 1  |
| 8    |  |                     |    |
| 8    |  |                     |    |
| 7    |  |                     |    |
| 7    |  |                     |    |
| 6    |  |                     |    |
| 6    | 2                                      |                     | 1  |
| 5    |  |                     |    |
| 5    | 3                                      |                     | 1  |
| 4    | 8                                      |                     | 1  |
| 4    | 0                                      |                     | 1  |
| 3    | 57                                     |                     | 2  |
| 3    | 4                                      |                     | 1  |
| 2    | 5578                                   |                     | 4  |
| 2    | 000224                                 |                     | 6  |
| 1    | 55679                                  |                     | 5  |
| 1    | 112234                                 |                     | 7  |
| 0    | 55556666677777888889                   |                     | 21 |
| 0    | 00001111111111111111222222222233333344 |                     | 42 |

MULTIPLY STEM.LEAF BY 10\*\*-01

| STEM | LEAF     |                       | # |
|------|----------|-----------------------|---|
| 8    | 7        | Free Hydrogen (Field) | 1 |
| 6    | 3        | mg/m**2               | 1 |
| 4    |          |                       |   |
| 2    | 12566457 |                       | 8 |
| 0    | 44568333 |                       | 8 |

MULTIPLY STEM.LEAF BY 10\*\*-01

BAR/STEM.LEAF CHARTS OF OBSERVED DEPOSITION  
NORTHWESTERN REGION

| STEM LEAF                                 | Magnesium<br>mg/m**2 | #  |
|---|----------------------|----|
| 40 6                                      |                      | 1  |
| 38  |                      |    |
| 36  |                      |    |
| 34  |                      |    |
| 32  |                      |    |
| 30 00                                     |                      | 2  |
| 28  |                      |    |
| 26  |                      |    |
| 24  |                      |    |
| 22  |                      |    |
| 20 1                                      |                      | 1  |
| 18  |                      |    |
| 16 0                                      |                      | 1  |
| 14 000                                    |                      | 3  |
| 12 1                                      |                      | 1  |
| 10  |                      |    |
| 8 49                                      |                      | 2  |
| 6 5901                                    |                      | 4  |
| 4 345857                                  |                      | 6  |
| 2 003469009                               |                      | 9  |
| 0 223337445566668889900000022444555666789 |                      | 39 |

MULTIPLY STEM.LEAF BY 10\*\*-02

| BAR CHART | Chloride<br>mg/m**2 | #  |
|-----------|---------------------|----|
| 3.3+*     |                     | 1  |
| .         |                     |    |
| .         |                     |    |
| .         |                     |    |
| .         |                     |    |
| .         |                     |    |
| 1.7*      |                     |    |
| .         |                     |    |
| .         |                     |    |
| ..*       |                     |    |
| .         |                     | 3  |
| ..*       |                     |    |
| .....*    |                     | 5  |
| 0.1+***** |                     | 17 |
| .....*    |                     | 61 |

\* MAY REPRESENT UP TO 2 COUNTS

| STEM LEAF                | Calcium<br>mg/m**2 | #  |
|--------------------------|--------------------|----|
| 27 0                     |                    | 1  |
| 26                       |                    |    |
| 25                       |                    |    |
| 24                       |                    |    |
| 23                       |                    |    |
| 22                       |                    |    |
| 21 0                     |                    | 1  |
| 20                       |                    |    |
| 19                       |                    |    |
| 18                       |                    |    |
| 17                       |                    |    |
| 16                       |                    |    |
| 15 00                    |                    | 2  |
| 14 2                     |                    | 1  |
| 13                       |                    |    |
| 12 8                     |                    | 1  |
| 11 37                    |                    | 2  |
| 10 6                     |                    | 1  |
| 9 5                      |                    | 1  |
| 8 378                    |                    | 3  |
| 7 289                    |                    | 3  |
| 6                        |                    |    |
| 5 2                      |                    | 1  |
| 4 56788                  |                    | 5  |
| 3 002224                 |                    | 6  |
| 2 0024478                |                    | 7  |
| 1 001223445777           |                    | 12 |
| 0 1122344555666667778899 |                    | 22 |

MULTIPLY STEM.LEAF BY 10\*\*-01

| STEM LEAF                    | Nitrate<br>mg N/m**2 | #  |
|------------------------------|----------------------|----|
| 10 1                         |                      | 1  |
| 9                            |                      |    |
| 9                            |                      |    |
| 8 5                          |                      | 1  |
| 8                            |                      |    |
| 7                            |                      |    |
| 7                            |                      |    |
| 6                            |                      |    |
| 6                            |                      |    |
| 5                            |                      |    |
| 5                            |                      |    |
| 4 6                          |                      | 1  |
| 4 0                          |                      |    |
| 3 89                         |                      | 1  |
| 3 00023                      |                      | 2  |
| 2 888                        |                      | 5  |
| 2 111                        |                      | 3  |
| 1 566677                     |                      | 3  |
| 1 000000112334               |                      | 6  |
| 0 55556666777888899999       |                      | 12 |
| 0 00001111111112222233333444 |                      | 21 |
| 0 00001111111112222233333444 |                      | 30 |

10

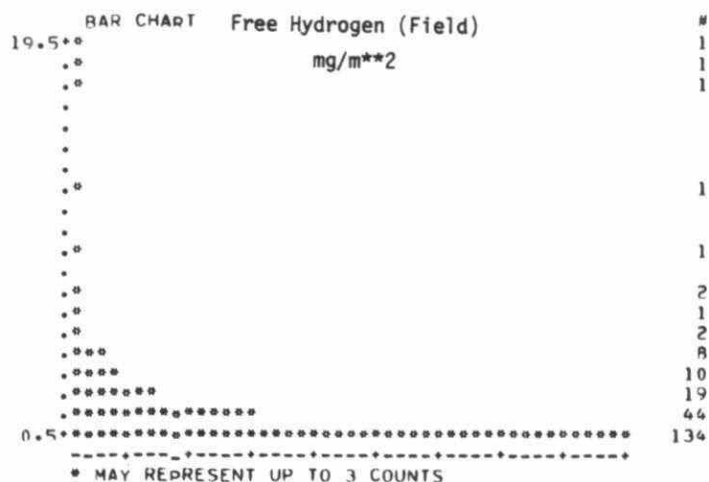
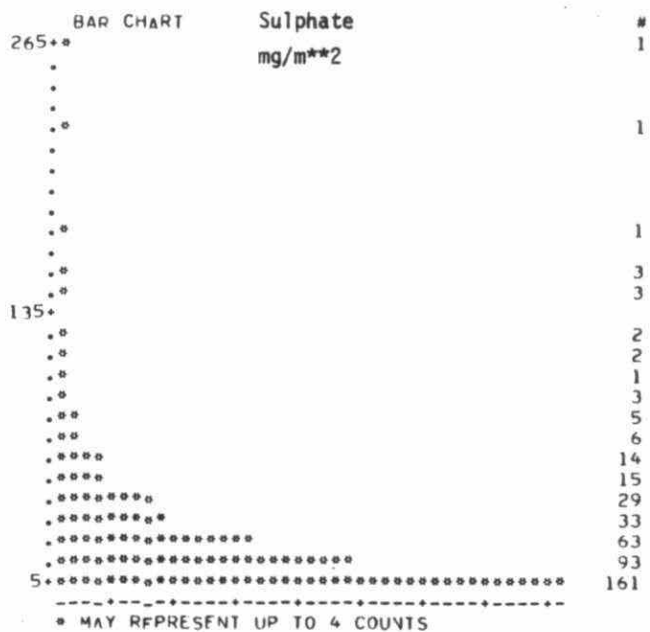
| STEM                         | LEAF                      | Potassium | #  |
|------------------------------|---------------------------|-----------|----|
| 10                           | 2                         | mg/m**2   | 1  |
| 9                            |                           |           |    |
| 9                            |                           |           |    |
| 8                            |                           |           |    |
| 8                            |                           |           |    |
| 7                            | 89                        |           | 2  |
| 7                            |                           |           |    |
| 6                            |                           |           |    |
| 6                            |                           |           |    |
| 5                            |                           |           |    |
| 5                            | 0                         |           | 1  |
| 4                            |                           |           |    |
| 4                            | 2                         |           | 1  |
| 3                            | 8                         |           | 1  |
| 3                            |                           |           |    |
| 2                            | 8                         |           | 1  |
| 2                            | 0444                      |           | 4  |
| 1                            | 5                         |           | 1  |
| 1                            | 01112333344               |           | 12 |
| 0                            | 556666677778889999        |           | 18 |
| 0                            | 1111111222222222333334444 |           | 27 |
| -----+-----                  |                           |           |    |
| MULTIPLY STEM.LEAF BY 10**01 |                           |           |    |

| STEM                           | LEAF   |         |    |
|--------------------------------|--|---------|----|
| 34                             | 5  | Sodium  | #  |
| 32                             |  | mg/m**2 | 1  |
| 30                             |  |         |    |
| 28                             |  |         |    |
| 26                             |  |         |    |
| 24                             |  |         |    |
| 22                             |  |         |    |
| 20                             | 3  |         | 1  |
| 18                             |  |         |    |
| 16                             |  |         |    |
| 14                             | 7  |         | 1  |
| 12                             |  |         |    |
| 10                             | 0  |         |    |
| 8                              | 04   |         | 1  |
| 6                              | 7  |         | 2  |
| 4                              | 8124   |         | 1  |
| 2                              | 0122344780469                                |         | 4  |
| 0                              | 12222233333444445556666777888899900113334569 |         | 13 |
|                                |  |         | 45 |
| -----+-----                    |  |         |    |
| MULTIPLY STEM.LEAF BY 10** -01 |  |         |    |

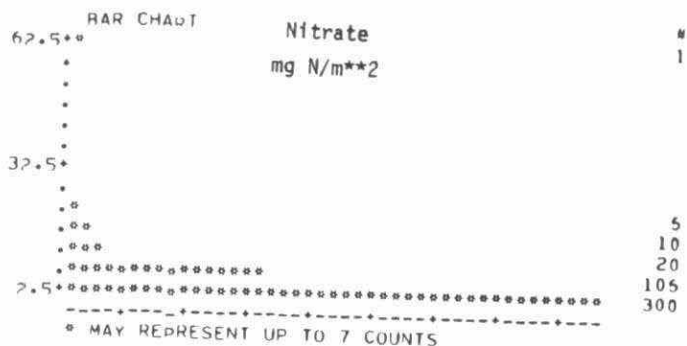
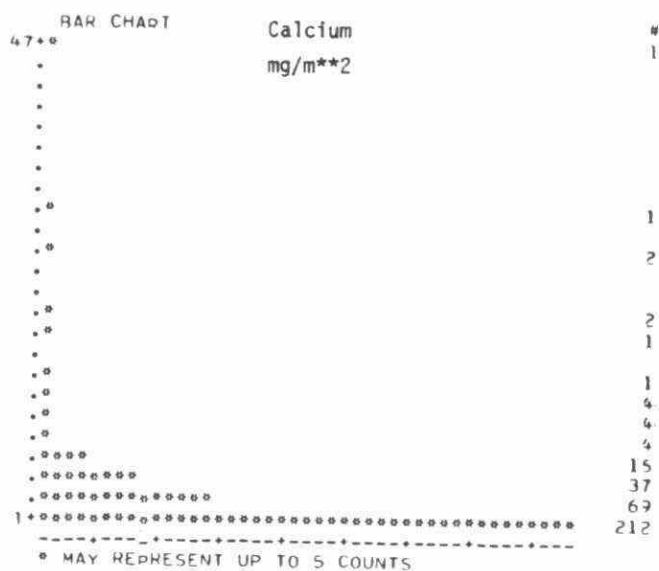
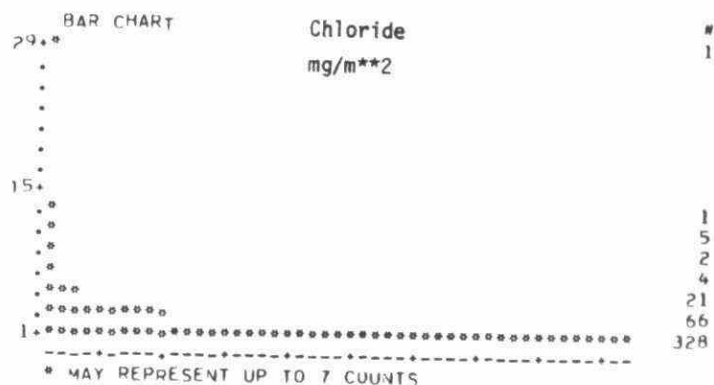
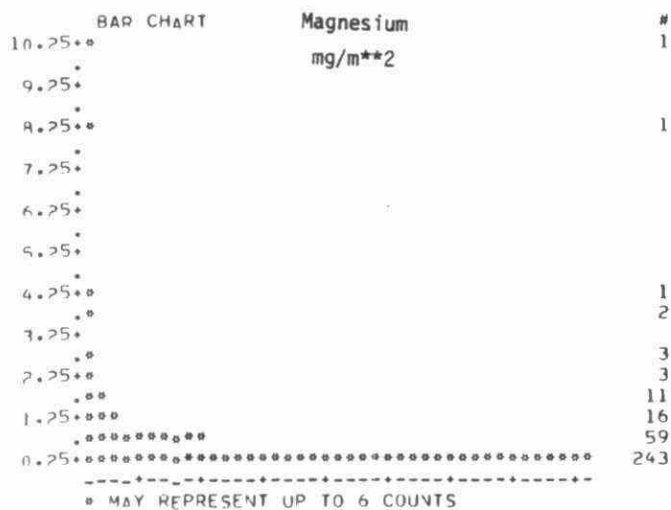
| STEM | LEAF                            | Ammonium  | #  |
|------|---------------------------------|-----------|----|
| 5    | 5                               | mg N/m**2 | 1  |
| 5    |                                 |           |    |
| 4    |                                 |           |    |
| 4    |                                 |           |    |
| 3    |                                 |           |    |
| 3    |                                 |           |    |
| 2    | 6 7 H                           |           |    |
| 2    | 4                               |           | 3  |
| 1    | 5555669                         |           | 1  |
| 1    | 000133                          |           | 7  |
| 0    | 55566666667788999               |           | 6  |
| 0    | 0000000n00011111222222233333344 |           | 17 |
|      | -----                           |           | 32 |



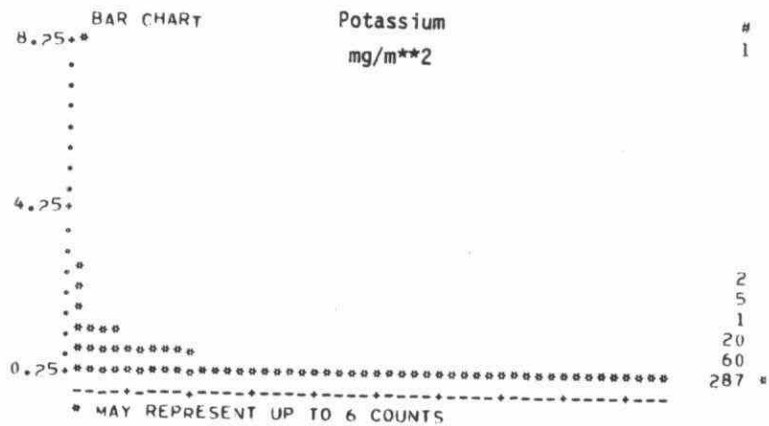
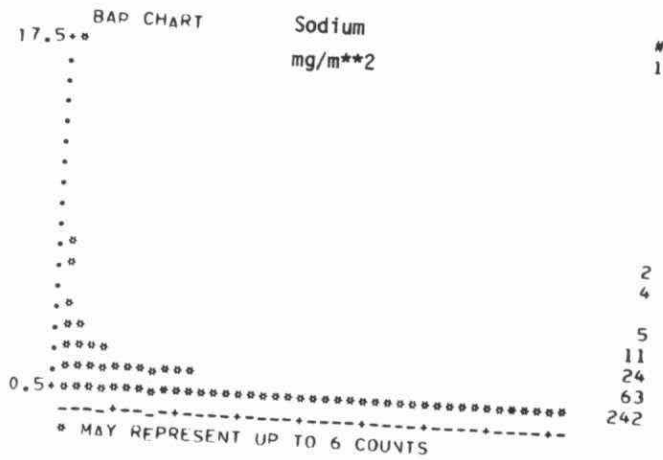
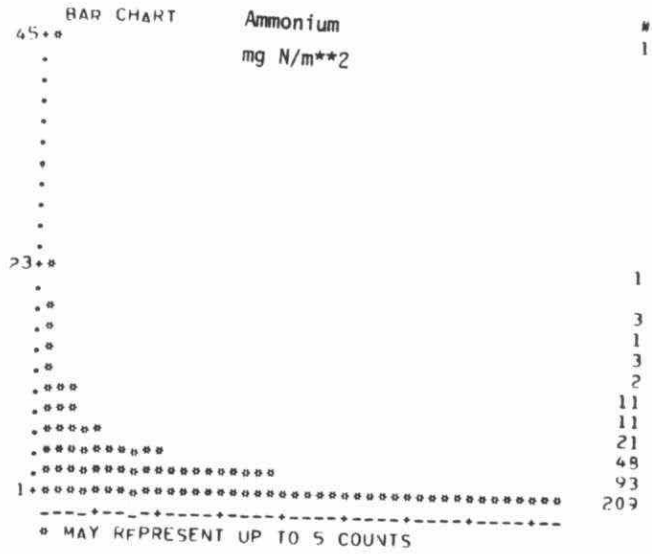
BAR/STEM-LEAF CHARTS OF OBSERVED DEPOSITION  
SOUTHEASTERN REGION

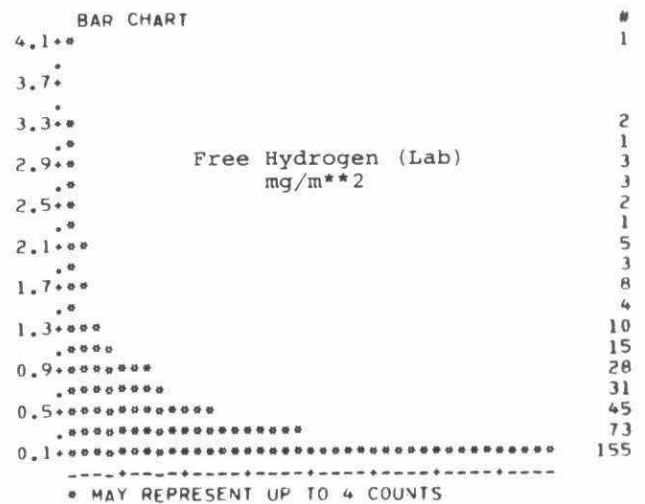


BAR/STEM.LEAF CHARTS OF OBSERVED DEPOSITION.  
SOUTHEASTERN REGION



BAR/STEM.LEAF CHARTS OF OBSERVED DEPOSITION  
SOUTHEASTERN REGION





BAR/STEM.LEAF CHARTS OF OBSERVED DEPOSITION

SOUTHWESTERN REGION

BAR CHART

47+\*

Calcium  
mg/m\*\*2

#  
1

1

1

2

2

4

11

19

29

81

179

\* MAY REPRESENT UP TO 4 COUNTS

BAR CHART

23.5+\*

Nitrate  
mg N/m\*\*2

#  
1

1

1

2

4

1

3

4

9

9

10

14

21

18

42

35

36

66

85

102

\* MAY REPRESENT UP TO 3 COUNTS

BAR CHART

16.5+\*

Chloride  
mg/m\*\*2

#  
1

1

1

2

2

4

8

27

46

135

224

\* MAY REPRESENT UP TO 5 COUNTS

BAR CHART

6.25+\*

Magnesium  
mg/m\*\*2

#  
1

1

3

1

5

10

24

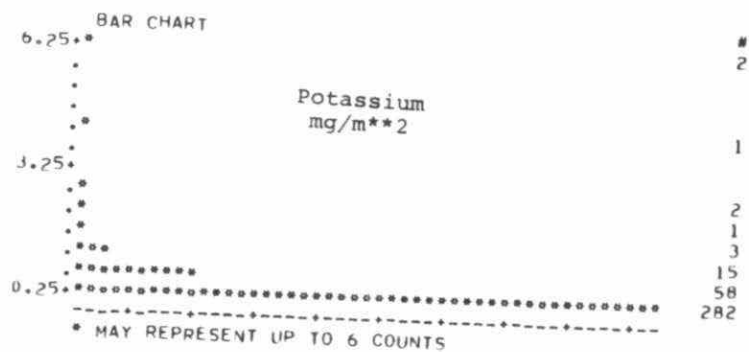
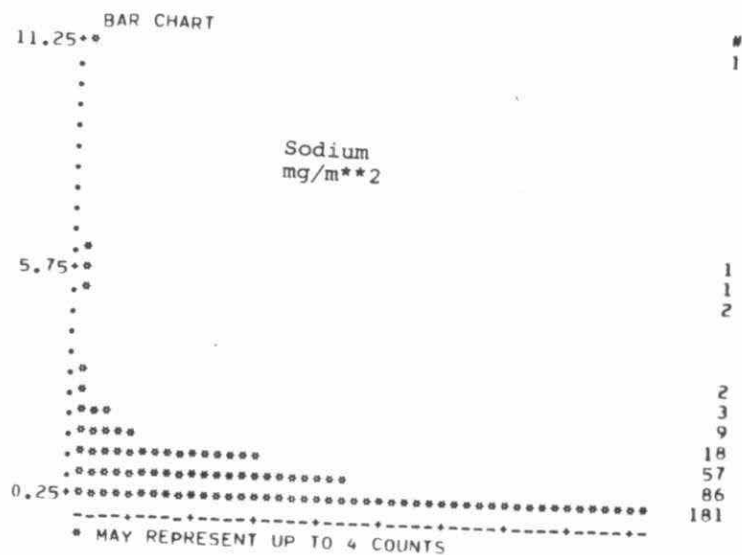
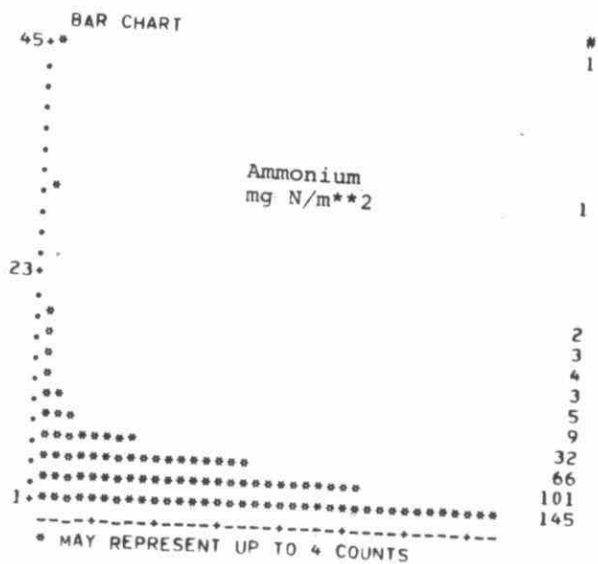
72

219

\* MAY REPRESENT UP TO 5 COUNTS

# BAR/STEM.LEAF CHARTS OF OBSERVED DEPOSITION

## SOUTHWESTERN REGION



PART V

SUMMARY STATISTICS OF OBSERVED CONCENTRATION BY STATION

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : BALSAM LAKE/DAILY PRECIPITATION

#06

PERIOD OF REPORT : JAN 1,81 TO JAN 1,82

PAGE : 1

|                   | PRECIP.<br>MM | CONDUCT.<br>JMHO/CM | PH<br>FIELD | PH<br>LAB | TOTAL H+<br>TO PH8.3<br>MG/L | SULPHATE<br>MG/L | NITRATE<br>AS N<br>MG/L |
|-------------------|---------------|---------------------|-------------|-----------|------------------------------|------------------|-------------------------|
| # OF SAMPLES :    | 116.0         | 67.0                | 54.00       | 104.00    | 69.0000                      | 99.00            | 101.000                 |
| MAXIMUM :         | 31.2          | 97.0                | 6.23        | 6.58      | 0.2520                       | 14.50            | 3.400                   |
| MINIMUM :         | 0.2           | 5.2                 | 3.53        | 3.43      | 0.0322                       | 0.20             | 0.050                   |
| RANGE :           | 31.0          | 91.8                | 2.70        | 3.15      | 0.2198                       | 14.30            | 3.350                   |
| ARITH. MEAN :     | 6.4           | 31.3                | 4.26        | 4.36      | 0.0927                       | 3.64             | 0.650                   |
| ARITH. STD. DEV : | 6.7           | 19.3                | 0.40        | 0.52      | 0.0435                       | 3.19             | 0.563                   |
| GEOM. MEAN :      | 3.5           | 26.0                | 4.24        | 4.33      | 0.0841                       | 2.49             | 0.461                   |
| GEOM. STD. DEV. : | 1.2           | 0.6                 | 0.09        | 0.11      | 0.4406                       | 0.94             | 0.878                   |
| 1ST QUARTILE :    | 1.4           | 16.8                | 4.08        | 4.07      | 0.0602                       | 1.32             | 0.260                   |
| 2ND QUARTILE :    | 3.4           | 26.8                | 4.20        | 4.27      | 0.0840                       | 2.45             | 0.515                   |
| 3RD QUARTILE :    | 8.2           | 39.3                | 4.35        | 4.53      | 0.1094                       | 4.77             | 0.795                   |
| VOL. WGT. MEAN :  | *****         | 29.5                | *****       | *****     | 0.0913                       | 3.00             | 0.475                   |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH / REVISED 23AUG83



ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : BALSAM LAKE/DAILY PRECIPITATION #06

PERIOD OF REPORT : JAN 1,81 TO JAN 1,82

PAGE : 2

|                   | CALCIUM | CHLORIDE | MAGNESIUM | POTASSIUM | SODIUM | AMMONIUM<br>AS N | FREE H+<br>LAB |
|-------------------|---------|----------|-----------|-----------|--------|------------------|----------------|
|                   | MG/L    | MG/L     | MG/L      | MG/L      | MG/L   | MG/L             | MG/L           |
| # OF SAMPLES :    | 81.000  | 101.000  | 86.000    | 92.000    | 87.000 | 88.000           | 104.0000       |
| MAXIMUM :         | 2.200   | 1.690    | 0.425     | 0.700     | 0.740  | 1.450            | 0.3715         |
| MINIMUM :         | 0.010   | 0.005    | 0.002     | 0.005     | 0.005  | 0.004            | 0.0003         |
| RANGE :           | 2.190   | 1.685    | 0.423     | 0.695     | 0.735  | 1.446            | 0.3713         |
| ARITH. MEAN :     | 0.383   | 0.226    | 0.056     | 0.042     | 0.105  | 0.395            | 0.0698         |
| ARITH. STD. DEV : | 0.491   | 0.251    | 0.078     | 0.092     | 0.142  | 0.362            | 0.0672         |
| GEOM. MEAN :      | 0.171   | 0.121    | 0.021     | 0.020     | 0.050  | 0.227            | 0.0436         |
| GEOM. STD. DEV. : | 1.334   | 1.313    | 1.544     | 1.112     | 1.304  | 1.232            | 1.2060         |
| 1ST QUARTILE :    | 0.070   | 0.070    | 0.005     | 0.010     | 0.020  | 0.115            | 0.0292         |
| 2ND QUARTILE :    | 0.130   | 0.130    | 0.020     | 0.020     | 0.060  | 0.269            | 0.0531         |
| 3RD QUARTILE :    | 0.555   | 0.310    | 0.075     | 0.040     | 0.115  | 0.620            | 0.0851         |
| VOL. WGT. MEAN :  | 0.246   | 0.182    | 0.039     | 0.040     | 0.067  | 0.320            | 0.0597         |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : CHARLESTON LAKE/DAILY PRECIPITATION #11

PERIOD OF REPORT : JAN 25.81 TO JAN 1.82

PAGE : 1

|                   | PRECIP.<br>MM | CONDUCT.<br>JMHO/CM | PH<br>FIELD | PH<br>LAB | TOTAL H+<br>TO PH8.3<br>MG/L | SULPHATE<br>MG/L | NITRATE<br>AS N<br>MG/L |
|-------------------|---------------|---------------------|-------------|-----------|------------------------------|------------------|-------------------------|
| # OF SAMPLES :    | 168.0         | 87.0                | 64.00       | 129.00    | 88.0000                      | 129.00           | 130.000                 |
| MAXIMUM :         | 47.4          | 103.0               | 5.72        | 5.77      | 0.2516                       | 16.20            | 8.900                   |
| MINIMUM :         | 0.0           | 3.2                 | 3.09        | 3.48      | 0.0276                       | 0.15             | 0.010                   |
| RANGE :           | 47.4          | 99.8                | 2.63        | 2.29      | 0.2240                       | 16.05            | 8.890                   |
| ARITH. MEAN :     | 6.0           | 33.8                | 4.16        | 4.31      | 0.0964                       | 3.80             | 0.766                   |
| ARITH. STD. DEV : | 7.7           | 20.1                | 0.48        | 0.46      | 0.0513                       | 2.90             | 0.939                   |
| GEOM. MEAN :      | 2.4           | 28.0                | 4.13        | 4.29      | 0.0842                       | 2.72             | 0.494                   |
| GEOM. STD. DEV. : | 1.6           | 0.7                 | 0.12        | 0.10      | 0.5280                       | 0.90             | 0.994                   |
| 1ST QUARTILE :    | 0.8           | 17.1                | 3.89        | 3.99      | 0.0611                       | 1.40             | 0.280                   |
| 2ND QUARTILE :    | 2.6           | 31.2                | 4.19        | 4.24      | 0.0831                       | 3.42             | 0.525                   |
| 3RD QUARTILE :    | 8.1           | 46.3                | 4.40        | 4.52      | 0.1281                       | 5.10             | 0.995                   |
| VOL. WGT. MEAN :  | *****         | 28.7                | *****       | *****     | 0.0876                       | 2.77             | 0.453                   |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE  
NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH / REVISED 23AUG83

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

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STATION NAME : CHARLESTON LAKE/DAILY PRECIPITATION #11

PERIOD OF REPORT : JAN 25,81 TO JAN 1,82

PAGE : 2

|                   | CALCIUM | CHLORIDE | MAGNESIM | POTASSIM | SODIUM  | AMMONIUM<br>AS N | FREE H+     |
|-------------------|---------|----------|----------|----------|---------|------------------|-------------|
|                   | MG/L    | MG/L     | MG/L     | MG/L     | MG/L    | MG/L             | LAB<br>MG/L |
| # OF SAMPLES :    | 105.000 | 128.000  | 104.000  | 109.000  | 103.000 | 120.000          | 129.0000    |
| MAXIMUM :         | 5.200   | 2.300    | 1.060    | 0.380    | 0.640   | 2.050            | 0.3311      |
| MINIMUM :         | 0.020   | 0.005    | 0.002    | 0.005    | 0.005   | 0.001            | 0.0017      |
| RANGE :           | 5.180   | 2.295    | 1.057    | 0.375    | 0.635   | 2.049            | 0.3294      |
| ARITH. MEAN :     | 0.354   | 0.254    | 0.067    | 0.038    | 0.136   | 0.420            | 0.0748      |
| ARITH. STD. DEV : | 0.619   | 0.319    | 0.129    | 0.050    | 0.156   | 0.379            | 0.0633      |
| GEOM. MEAN :      | 0.166   | 0.137    | 0.024    | 0.022    | 0.065   | 0.232            | 0.0488      |
| GEOM. STD. DEV. : | 1.207   | 1.254    | 1.497    | 1.025    | 1.335   | 1.470            | 1.0707      |
| 1ST QUARTILE :    | 0.070   | 0.080    | 0.008    | 0.010    | 0.020   | 0.147            | 0.0299      |
| 2ND QUARTILE :    | 0.170   | 0.170    | 0.025    | 0.020    | 0.070   | 0.336            | 0.0556      |
| 3RD QUARTILE :    | 0.305   | 0.315    | 0.062    | 0.040    | 0.195   | 0.560            | 0.1012      |
| VOL. WGT. MEAN :  | 0.179   | 0.155    | 0.031    | 0.027    | 0.102   | 0.303            | 0.0579      |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : DORSET/DAILY PRECIPITATION

#08

PERIOD OF REPORT : JAN 1,81 TO JAN 1,82

PAGE : 1

|                    | PRECIP.<br>MM | CONDUCT.<br>JMHO/CM | PH<br>FIELD | PH<br>LAB | TOTAL H+<br>TO PH8.3<br>MG/L | SULPHATE<br>MG/L | NITRATE<br>AS N<br>MG/L |
|--------------------|---------------|---------------------|-------------|-----------|------------------------------|------------------|-------------------------|
| # OF SAMPLES :     | 144.0         | 87.0                | 66.00       | 132.00    | 84.0000                      | 132.00           | 133.000                 |
| MAXIMUM :          | 48.2          | 195.0               | 4.77        | 5.37      | 0.5116                       | 19.90            | 2.600                   |
| MINIMUM :          | 0.1           | 5.5                 | 3.24        | 3.37      | 0.0280                       | 0.02             | 0.005                   |
| RANGE :            | 48.1          | 189.5               | 1.53        | 2.00      | 0.4836                       | 19.87            | 2.595                   |
| ARITH. MEAN :      | 6.4           | 35.0                | 4.14        | 4.29      | 0.1013                       | 3.23             | 0.625                   |
| ARITH. STD. DEV. : | 7.8           | 29.1                | 0.29        | 0.37      | 0.0703                       | 3.06             | 0.550                   |
| GEOM. MEAN :       | 3.3           | 27.4                | 4.13        | 4.27      | 0.0869                       | 2.11             | 0.408                   |
| GEOM. STD. DEV. :  | 1.3           | 0.7                 | 0.07        | 0.09      | 0.5232                       | 1.05             | 1.061                   |
| 1ST QUARTILE :     | 1.6           | 18.6                | 3.98        | 4.02      | 0.0638                       | 1.25             | 0.250                   |
| 2ND QUARTILE :     | 3.4           | 25.1                | 4.15        | 4.28      | 0.0804                       | 2.35             | 0.435                   |
| 3RD QUARTILE :     | 7.3           | 40.8                | 4.38        | 4.47      | 0.1171                       | 4.00             | 0.855                   |
| VOL. WGT. MEAN :   | *****         | 31.1                | *****       | *****     | 0.0960                       | 3.03             | 0.464                   |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH / REVISED 23AUG83

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : DORSET/DAILY PRECIPITATION

#08

PERIOD OF REPORT : JAN 1,81 TO JAN 1,82

PAGE : 2

|                   | CALCIUM | CHLORIDE | MAGNESIUM | POTASSIUM | SODIUM  | AMMONIUM<br>AS N | FREE H+<br>LAB |
|-------------------|---------|----------|-----------|-----------|---------|------------------|----------------|
|                   | MG/L    | MG/L     | MG/L      | MG/L      | MG/L    | MG/L             | MG/L           |
| # OF SAMPLES :    | 112.000 | 133.000  | 111.000   | 115.000   | 115.000 | 114.000          | 132.0000       |
| MAXIMUM :         | 2.000   | 2.100    | 0.355     | 0.590     | 1.650   | 2.150            | 0.4266         |
| MINIMUM :         | 0.005   | 0.005    | 0.002     | 0.005     | 0.005   | 0.001            | 0.0043         |
| RANGE :           | 1.995   | 2.095    | 0.353     | 0.585     | 1.645   | 2.149            | 0.4223         |
| ARITH. MEAN :     | 0.230   | 0.190    | 0.036     | 0.034     | 0.079   | 0.387            | 0.0719         |
| ARITH. STD. DEV : | 0.332   | 0.246    | 0.059     | 0.063     | 0.178   | 0.406            | 0.0626         |
| GEOM. MEAN :      | 0.107   | 0.108    | 0.015     | 0.018     | 0.035   | 0.181            | 0.0517         |
| GEOM. STD. DEV. : | 1.294   | 1.173    | 1.359     | 1.061     | 1.176   | 1.645            | 0.8597         |
| 1ST QUARTILE :    | 0.040   | 0.060    | 0.005     | 0.005     | 0.015   | 0.096            | 0.0339         |
| 2ND QUARTILE :    | 0.110   | 0.130    | 0.015     | 0.020     | 0.030   | 0.240            | 0.0519         |
| 3RD QUARTILE :    | 0.250   | 0.235    | 0.035     | 0.040     | 0.085   | 0.540            | 0.0955         |
| VOL. WGT. MEAN :  | 0.185   | 0.133    | 0.029     | 0.030     | 0.055   | 0.317            | 0.0628         |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : FERNBERG/DAILY PRECIPITATION

#16

PERIOD OF REPORT : OCT 1,81 TO DEC 31,81

PAGE : 1

|                   | PRECIP.<br>MM | CONDUCT.<br>UMHO/CM | PH<br>FIELD | PH<br>LAB | TOTAL H+<br>TO PH8.3<br>MG/L | SULPHATE<br>MG/L | NITRATE<br>AS N<br>MG/L |
|-------------------|---------------|---------------------|-------------|-----------|------------------------------|------------------|-------------------------|
| # OF SAMPLES :    | 25.0          | 18.0                | 3.00        | 23.00     | 17.0000                      | 23.00            | 23.000                  |
| MAXIMUM :         | 14.0          | 26.5                | 5.16        | 5.52      | 0.0898                       | 13.30            | 1.960                   |
| MINIMUM :         | 0.1           | 4.7                 | 4.37        | 3.90      | 0.0388                       | 0.10             | 0.005                   |
| RANGE :           | 13.9          | 21.8                | 0.79        | 1.62      | 0.0510                       | 13.20            | 1.955                   |
| ARITH. MEAN :     | 4.7           | 13.8                | 4.72        | 4.62      | 0.0629                       | 1.51             | 0.342                   |
| ARITH. STD. DEV : | 4.1           | 7.5                 | 0.40        | 0.42      | 0.0163                       | 2.69             | 0.414                   |
| GEOM. MEAN :      | 2.7           | 11.8                | 4.71        | 4.61      | 0.0608                       | 0.80             | 0.188                   |
| GEOM. STD. DEV. : | 1.3           | 0.6                 | 0.08        | 0.09      | 0.2662                       | 1.05             | 1.285                   |
| 1ST QUARTILE :    | 1.1           | 6.2                 | *****       | 4.25      | 0.0498                       | 0.38             | 0.110                   |
| 2ND QUARTILE :    | 3.6           | 13.0                | *****       | 4.52      | 0.0588                       | 0.80             | 0.205                   |
| 3RD QUARTILE :    | 5.9           | 19.7                | *****       | 5.00      | 0.0751                       | 1.22             | 0.410                   |
| VOL. WGT. MEAN :  | *****         | 13.6                | *****       | *****     | 0.0629                       | 0.87             | 0.298                   |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH / REVISED 23AUG83

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

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STATION NAME : FERNBERG/DAILY PRECIPITATION

#16

PERIOD OF REPORT : OCT 1,81 TO DEC 31,81

PAGE : 2

|                   | CALCIUM | CHLORIDE | MAGNESIM | POTASSIM | SODIUM | AMMONIUM<br>AS N | FREE H+<br>LAB |
|-------------------|---------|----------|----------|----------|--------|------------------|----------------|
|                   | MG/L    | MG/L     | MG/L     | MG/L     | MG/L   | MG/L             | MG/L           |
| # OF SAMPLES :    | 21.000  | 24.000   | 21.000   | 21.000   | 21.000 | 21.000           | 23.0000        |
| MAXIMUM :         | 0.380   | 0.420    | 0.145    | 0.070    | 0.250  | 0.312            | 0.1259         |
| MINIMUM :         | 0.005   | 0.005    | 0.002    | 0.005    | 0.005  | 0.001            | 0.0030         |
| RANGE :           | 0.375   | 0.415    | 0.142    | 0.065    | 0.245  | 0.311            | 0.1229         |
| ARITH. MEAN :     | 0.065   | 0.079    | 0.014    | 0.023    | 0.056  | 0.111            | 0.0347         |
| ARITH. STD. DEV : | 0.080   | 0.111    | 0.031    | 0.017    | 0.066  | 0.099            | 0.0290         |
| GEOM. MEAN :      | 0.038   | 0.038    | 0.006    | 0.017    | 0.031  | 0.054            | 0.0238         |
| GEOM. STD. DEV. : | 1.146   | 1.274    | 1.119    | 0.843    | 1.115  | 1.656            | 0.9623         |
| 1ST QUARTILE :    | 0.020   | 0.020    | 0.002    | 0.008    | 0.015  | 0.033            | 0.0098         |
| 2ND QUARTILE :    | 0.055   | 0.045    | 0.004    | 0.020    | 0.025  | 0.092            | 0.0254         |
| 3RD QUARTILE :    | 0.075   | 0.075    | 0.010    | 0.035    | 0.065  | 0.115            | 0.0497         |
| VOL. WGT. MEAN :  | 0.070   | 0.040    | 0.012    | 0.021    | 0.051  | 0.109            | 0.0303         |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : FORBES TWP/DAILY PRECIPITATION

#13

PERIOD OF REPORT : SEP 23,81 TO DEC 31,81

PAGE : 1

|                   | PRECIP.<br>MM | CONDUCT.<br>JMHO/CM | PH<br>FIELD | PH<br>LAB | TOTAL H+<br>TO PH8.3<br>MG/L | SULPHATE<br>MG/L | NITRATE<br>AS N<br>MG/L |
|-------------------|---------------|---------------------|-------------|-----------|------------------------------|------------------|-------------------------|
| # OF SAMPLES :    | 44.0          | 20.0                | 10.00       | 36.00     | 18.0000                      | 31.00            | 31.000                  |
| MAXIMUM :         | 18.9          | 74.5                | 5.20        | 5.98      | 0.0990                       | 8.70             | 2.600                   |
| MINIMUM :         | 0.1           | 3.6                 | 3.81        | 3.56      | 0.0334                       | 0.10             | 0.005                   |
| RANGE :           | 18.8          | 70.9                | 1.39        | 2.42      | 0.0656                       | 8.60             | 2.595                   |
| ARITH. MEAN :     | 3.3           | 20.3                | 4.49        | 4.49      | 0.0630                       | 1.83             | 0.438                   |
| ARITH. STD. DEV : | 4.8           | 18.3                | 0.44        | 0.46      | 0.0232                       | 2.28             | 0.547                   |
| GEOM. MEAN :      | 1.2           | 15.0                | 4.47        | 4.47      | 0.0590                       | 0.93             | 0.235                   |
| GEOM. STD. DEV. : | 1.5           | 0.8                 | 0.10        | 0.10      | 0.3772                       | 1.25             | 1.290                   |
| 1ST QUARTILE :    | 0.4           | 8.2                 | 4.22        | 4.22      | 0.0415                       | 0.40             | 0.130                   |
| 2ND QUARTILE :    | 1.3           | 13.9                | 4.37        | 4.47      | 0.0564                       | 0.97             | 0.210                   |
| 3RD QUARTILE :    | 3.2           | 24.8                | 4.62        | 4.76      | 0.0857                       | 1.90             | 0.545                   |
| VOL. WGT. MEAN :  | *****         | 16.3                | *****       | *****     | 0.0620                       | 1.54             | 0.264                   |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH / REVISED 23AUG83



ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

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STATION NAME : FORBES TWSP/DAILY PRECIPITATION

#13

PERIOD OF REPORT : SEP 23,81 TO DEC 31,81

PAGE : 2

|                   | CALCIUM | CHLORIDE | MAGNESIUM | POTASSIUM | SODIUM | AMMONIUM<br>AS N | FREE H+<br>LAB<br>MG/L |
|-------------------|---------|----------|-----------|-----------|--------|------------------|------------------------|
|                   | MG/L    | MG/L     | MG/L      | MG/L      | MG/L   | MG/L             | MG/L                   |
| # OF SAMPLES :    | 24.000  | 31.000   | 24.000    | 24.000    | 24.000 | 24.000           | 36.0000                |
| MAXIMUM :         | 0.710   | 0.600    | 0.075     | 0.320     | 0.420  | 2.500            | 0.2754                 |
| MINIMUM :         | 0.010   | 0.005    | 0.002     | 0.005     | 0.005  | 0.004            | 0.0010                 |
| RANGE :           | 0.700   | 0.595    | 0.072     | 0.315     | 0.415  | 2.496            | 0.2744                 |
| ARITH. MEAN :     | 0.161   | 0.091    | 0.018     | 0.054     | 0.087  | 0.320            | 0.0509                 |
| ARITH. STD. DEV : | 0.183   | 0.127    | 0.021     | 0.084     | 0.102  | 0.531            | 0.0547                 |
| GEOM. MEAN :      | 0.088   | 0.034    | 0.009     | 0.023     | 0.041  | 0.131            | 0.0322                 |
| GEOM. STD. DEV. : | 1.160   | 1.575    | 1.229     | 1.299     | 1.368  | 1.525            | 1.0556                 |
| 1ST QUARTILE :    | 0.035   | 0.005    | 0.002     | 0.008     | 0.010  | 0.074            | 0.0174                 |
| 2ND QUARTILE :    | 0.085   | 0.045    | 0.008     | 0.020     | 0.050  | 0.152            | 0.0339                 |
| 3RD QUARTILE :    | 0.220   | 0.130    | 0.030     | 0.055     | 0.130  | 0.265            | 0.0612                 |
| VOL. WGT. MEAN :  | 0.093   | 0.057    | 0.010     | 0.031     | 0.077  | 0.167            | 0.0376                 |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : GRAHAM LAKE/DAILY PRECIPITATION

#12

PERIOD OF REPORT : JAN 1.81 TO JAN 1.82

PAGE : 1

|                   | PRECIP.<br>MM | CONDUCT.<br>UMHO/CM | PH<br>FIELD | PH<br>LAB | TOTAL H+<br>TO PH8.3<br>MG/L | SULPHATE<br>MG/L | NITRATE<br>AS N<br>MG/L |
|-------------------|---------------|---------------------|-------------|-----------|------------------------------|------------------|-------------------------|
| # OF SAMPLES :    | 141.0         | 80.0                | 58.00       | 113.00    | 83.0000                      | 120.00           | 122.000                 |
| MAXIMUM :         | 38.0          | 88.5                | 6.05        | 6.82      | 0.2226                       | 20.00            | 8.600                   |
| MINIMUM :         | 0.1           | 3.4                 | 3.25        | 3.40      | 0.0236                       | 0.02             | 0.005                   |
| RANGE :           | 37.9          | 85.1                | 2.80        | 3.42      | 0.1990                       | 19.97            | 8.595                   |
| ARITH. MEAN :     | 7.3           | 31.3                | 4.31        | 4.39      | 0.0836                       | 3.73             | 0.736                   |
| ARITH. STD. DEV : | 7.6           | 19.5                | 0.50        | 0.57      | 0.0445                       | 2.95             | 0.884                   |
| GEOM. MEAN :      | 4.1           | 24.8                | 4.28        | 4.35      | 0.0731                       | 2.63             | 0.452                   |
| GEOM. STD. DEV. : | 1.2           | 0.7                 | 0.11        | 0.12      | 0.5262                       | 0.98             | 1.140                   |
| 1ST QUARTILE :    | 2.1           | 15.3                | 3.98        | 4.03      | 0.0489                       | 1.55             | 0.270                   |
| 2ND QUARTILE :    | 4.8           | 25.6                | 4.30        | 4.27      | 0.0729                       | 3.32             | 0.505                   |
| 3RD QUARTILE :    | 9.6           | 43.6                | 4.55        | 4.58      | 0.1048                       | 5.13             | 0.980                   |
| VOL. WGT. MEAN :  | *****         | 28.4                | *****       | *****     | 0.0799                       | 2.96             | 0.554                   |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH / REVISED 23AUG83

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : GRAHAM LAKE/DAILY PRECIPITATION

#12

PERIOD OF REPORT : JAN 1.81 TO JAN 1.82

PAGE : 2

|                    | CALCIUM | CHLORIDE | MAGNESIM | POTASSIM | SODIUM | AMMONIUM<br>AS N | FREE H+     |
|--------------------|---------|----------|----------|----------|--------|------------------|-------------|
|                    | MG/L    | MG/L     | MG/L     | MG/L     | MG/L   | MG/L             | LAB<br>MG/L |
| # OF SAMPLES :     | 96.000  | 119.000  | 86.000   | 102.000  | 99.000 | 109.000          | 113.0000    |
| MAXIMUM :          | 6.600   | 1.350    | 1.400    | 0.800    | 0.890  | 1.530            | 0.3981      |
| MINIMUM :          | 0.005   | 0.020    | 0.002    | 0.005    | 0.005  | 0.004            | 0.0002      |
| RANGE :            | 6.595   | 1.330    | 1.397    | 0.795    | 0.885  | 1.526            | 0.3980      |
| ARITH. MEAN :      | 0.496   | 0.276    | 0.087    | 0.066    | 0.142  | 0.439            | 0.0677      |
| ARITH. STD. DEV. : | 0.827   | 0.237    | 0.175    | 0.105    | 0.183  | 0.362            | 0.0620      |
| GEOM. MEAN :       | 0.230   | 0.191    | 0.031    | 0.035    | 0.080  | 0.275            | 0.0411      |
| GEOM. STD. DEV. :  | 1.278   | 0.924    | 1.520    | 1.099    | 1.092  | 1.183            | 1.3068      |
| 1ST QUARTILE :     | 0.095   | 0.115    | 0.010    | 0.020    | 0.040  | 0.161            | 0.0257      |
| 2ND QUARTILE :     | 0.220   | 0.210    | 0.032    | 0.040    | 0.080  | 0.370            | 0.0531      |
| 3RD QUARTILE :     | 0.605   | 0.360    | 0.082    | 0.070    | 0.150  | 0.595            | 0.0912      |
| VOL. WGT. MEAN :   | 0.342   | 0.188    | 0.057    | 0.044    | 0.093  | 0.346            | 0.0589      |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : LAC LA CROIX/DAILY PRECIPITATION

#15

PERIOD OF REPORT : SEP 23.81 TO DEC 12.81

PAGE : 1

|                   | PRECIP.<br>MM | CONDUCT.<br>UMHO/CM | PH<br>FIELD | PH<br>LAB | TOTAL H+<br>TO PH8.3<br>MG/L | SULPHATE<br>MG/L | NITRATE<br>AS N<br>MG/L |
|-------------------|---------------|---------------------|-------------|-----------|------------------------------|------------------|-------------------------|
| # OF SAMPLES :    | 9.0           | 4.0                 | 1.00        | 9.00      | 4.0000                       | 7.00             | 7.000                   |
| MAXIMUM :         | 13.1          | 31.2                | 4.55        | 5.06      | 0.1070                       | 7.60             | 0.850                   |
| MINIMUM :         | 0.3           | 6.2                 | 4.55        | 4.14      | 0.0356                       | 0.35             | 0.070                   |
| RANGE :           | 12.8          | 25.0                | 0.00        | 0.92      | 0.0714                       | 7.25             | 0.780                   |
| ARITH. MEAN :     | 4.4           | 18.5                | *****       | 4.47      | 0.0751                       | 2.27             | 0.457                   |
| ARITH. STD. DEV : | 4.6           | 11.6                | *****       | 0.31      | 0.0309                       | 2.62             | 0.294                   |
| GEOM. MEAN :      | 2.3           | 15.4                | *****       | 4.46      | 0.0695                       | 1.28             | 0.349                   |
| GEOM. STD. DEV. : | 1.3           | 0.7                 | *****       | 0.07      | 0.4843                       | 1.18             | 0.900                   |
| 1ST QUARTILE :    | 0.8           | 8.9                 | *****       | 4.21      | 0.0516                       | 0.35             | 0.120                   |
| 2ND QUARTILE :    | 1.6           | 18.2                | *****       | 4.35      | 0.0790                       | 0.88             | 0.410                   |
| 3RD QUARTILE :    | 5.6           | 28.0                | *****       | 4.53      | 0.0987                       | 2.93             | 0.645                   |
| VOL. WGT. MEAN :  | *****         | 16.9                | *****       | *****     | 0.0697                       | 1.31             | 0.433                   |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH / REVISED 23AUG83

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : LAC LA CROIX/DAILY PRECIPITATION #15

PERIOD OF REPORT : SEP 23,81 TO DEC 12,81

PAGE : 2

|                   | CALCIUM | CHLORIDE | MAGNESIM | POTASSIM | SODIUM | AMMONIUM<br>AS N | FREE H+<br>LAB |
|-------------------|---------|----------|----------|----------|--------|------------------|----------------|
|                   | MG/L    | MG/L     | MG/L     | MG/L     | MG/L   | MG/L             | MG/L           |
| # OF SAMPLES :    | 5.000   | 7.000    | 5.000    | 5.000    | 5.000  | 7.000            | 9.0000         |
| MAXIMUM :         | 0.270   | 0.520    | 0.015    | 0.060    | 0.120  | 1.000            | 0.0724         |
| MINIMUM :         | 0.020   | 0.020    | 0.002    | 0.010    | 0.010  | 0.050            | 0.0087         |
| RANGE :           | 0.250   | 0.500    | 0.012    | 0.050    | 0.110  | 0.950            | 0.0637         |
| ARITH. MEAN :     | 0.132   | 0.150    | 0.008    | 0.032    | 0.076  | 0.345            | 0.0409         |
| ARITH. STD. DEV : | 0.108   | 0.170    | 0.005    | 0.023    | 0.052  | 0.351            | 0.0221         |
| GEOM. MEAN :      | 0.092   | 0.095    | 0.007    | 0.025    | 0.053  | 0.201            | 0.0340         |
| GEOM. STD. DEV. : | 1.053   | 1.035    | 0.708    | 0.860    | 1.100  | 1.183            | 0.7157         |
| 1ST QUARTILE :    | 0.040   | 0.030    | 0.004    | 0.010    | 0.020  | 0.055            | 0.0194         |
| 2ND QUARTILE :    | 0.075   | 0.090    | 0.008    | 0.020    | 0.070  | 0.146            | 0.0390         |
| 3RD QUARTILE :    | 0.155   | 0.145    | 0.010    | 0.040    | 0.110  | 0.505            | 0.0542         |
| VOL. WGT. MEAN :  | 0.132   | 0.075    | 0.008    | 0.043    | 0.061  | 0.244            | 0.0336         |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : LONGWOODS/DAILY PRECIPITATION  
PERIOD OF REPORT : DEC 31,80 TO JAN 1,82

#02

PAGE : 1

|                   | PRECIP.<br>MM | CONDUCT.<br>JMHO/CM | PH<br>FIELD | PH<br>LAB | TOTAL H+<br>TO PH8.3<br>MG/L | SULPHATE<br>MG/L | NITRATE<br>AS N<br>MG/L |
|-------------------|---------------|---------------------|-------------|-----------|------------------------------|------------------|-------------------------|
| # OF SAMPLES :    | 125.0         | 75.0                | 30.00       | 87.00     | 72.0000                      | 110.00           | 110.000                 |
| MAXIMUM :         | 53.0          | 120.0               | 5.95        | 6.03      | 0.2900                       | 23.00            | 5.600                   |
| MINIMUM :         | 0.1           | 3.9                 | 3.53        | 3.23      | 0.0266                       | 0.20             | 0.020                   |
| RANGE :           | 52.9          | 116.1               | 2.42        | 2.80      | 0.2634                       | 22.80            | 5.580                   |
| ARITH. MEAN :     | 7.3           | 34.1                | 4.35        | 4.33      | 0.0843                       | 4.25             | 0.802                   |
| ARITH. STD. DEV : | 8.3           | 23.6                | 0.53        | 0.52      | 0.0503                       | 3.49             | 0.767                   |
| GEOM. MEAN :      | 3.8           | 27.3                | 4.32        | 4.30      | 0.0722                       | 3.06             | 0.540                   |
| GEOM. STD. DEV. : | 1.3           | 0.7                 | 0.11        | 0.12      | 0.5608                       | 0.87             | 0.981                   |
| 1ST QUARTILE :    | 1.6           | 17.7                | 4.01        | 4.02      | 0.0454                       | 1.95             | 0.305                   |
| 2ND QUARTILE :    | 4.1           | 27.5                | 4.16        | 4.26      | 0.0754                       | 3.07             | 0.585                   |
| 3RD QUARTILE :    | 9.4           | 42.8                | 4.52        | 4.53      | 0.1144                       | 5.40             | 1.035                   |
| VOL. WGT. MEAN :  | *****         | 32.3                | *****       | *****     | 0.0884                       | 3.56             | 0.565                   |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE  
NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH / REVISED 23AUG83

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : LONGWOODS/DAILY PRECIPITATION

#02

PERIOD OF REPORT : DEC 31,80 TO JAN 1,82

PAGE : 2

|                   | CALCIUM | CHLORIDE | MAGNESIM | POTASSIM | SODIUM | AMMONIUM<br>AS N | FREE H+<br>LAB |
|-------------------|---------|----------|----------|----------|--------|------------------|----------------|
|                   | MG/L    | MG/L     | MG/L     | MG/L     | MG/L   | MG/L             | MG/L           |
| # OF SAMPLES :    | 81.000  | 104.000  | 86.000   | 97.000   | 97.000 | 100.000          | 87.0000        |
| MAXIMUM :         | 3.400   | 2.350    | 0.550    | 1.060    | 2.100  | 4.400            | 0.5888         |
| MINIMUM :         | 0.030   | 0.005    | 0.002    | 0.005    | 0.005  | 0.036            | 0.0009         |
| RANGE :           | 3.370   | 2.345    | 0.548    | 1.055    | 2.095  | 4.364            | 0.5879         |
| ARITH. MEAN :     | 0.537   | 0.325    | 0.094    | 0.084    | 0.170  | 0.556            | 0.0799         |
| ARITH. STD. DEV : | 0.596   | 0.370    | 0.098    | 0.142    | 0.253  | 0.553            | 0.0903         |
| GEOM. MEAN :      | 0.344   | 0.201    | 0.057    | 0.048    | 0.095  | 0.383            | 0.0466         |
| GEOM. STD. DEV. : | 0.954   | 1.071    | 1.129    | 0.977    | 1.086  | 0.913            | 1.1919         |
| 1ST QUARTILE :    | 0.205   | 0.120    | 0.027    | 0.025    | 0.050  | 0.223            | 0.0282         |
| 2ND QUARTILE :    | 0.345   | 0.220    | 0.062    | 0.040    | 0.090  | 0.405            | 0.0531         |
| 3RD QUARTILE :    | 0.620   | 0.360    | 0.127    | 0.090    | 0.195  | 0.725            | 0.0933         |
| VOL. WGT. MEAN :  | 0.401   | 0.195    | 0.062    | 0.048    | 0.097  | 0.440            | 0.0640         |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : MELBOURNE/DAILY PRECIPITATION  
PERIOD OF REPORT : JAN 3,81 TO JAN 1,82

#01

PAGE : 1

|                   | PRECIP.<br>MM | CONDUCT.<br>JMHO/CM | PH<br>FIELD | PH<br>LAB | TOTAL H+<br>TO PH8.3<br>MG/L | SULPHATE<br>MG/L | NITRATE<br>AS N<br>MG/L |
|-------------------|---------------|---------------------|-------------|-----------|------------------------------|------------------|-------------------------|
| # OF SAMPLES :    | 120.0         | 65.0                | 33.00       | 99.00     | 64.0000                      | 101.00           | 101.000                 |
| MAXIMUM :         | 45.2          | 90.0                | 5.85        | 5.98      | 0.2234                       | 30.00            | 5.400                   |
| MINIMUM :         | 0.1           | 3.9                 | 3.77        | 3.08      | 0.0228                       | 0.45             | 0.005                   |
| RANGE :           | 45.1          | 86.1                | 2.08        | 2.90      | 0.2006                       | 29.55            | 5.395                   |
| ARITH. MEAN :     | 6.7           | 33.3                | 4.42        | 4.23      | 0.0940                       | 4.75             | 0.880                   |
| ARITH. STD. DEV : | 7.6           | 17.7                | 0.52        | 0.48      | 0.0408                       | 4.23             | 0.876                   |
| GEOM. MEAN :      | 3.7           | 27.9                | 4.39        | 4.21      | 0.0851                       | 3.53             | 0.583                   |
| GEOM. STD. DEV. : | 1.2           | 0.7                 | 0.11        | 0.11      | 0.4657                       | 0.79             | 1.034                   |
| 1ST QUARTILE :    | 1.6           | 19.7                | 4.08        | 3.98      | 0.0646                       | 2.20             | 0.385                   |
| 2ND QUARTILE :    | 3.9           | 31.7                | 4.22        | 4.18      | 0.0916                       | 3.75             | 0.615                   |
| 3RD QUARTILE :    | 8.8           | 44.8                | 4.63        | 4.41      | 0.1161                       | 5.80             | 1.070                   |
| VOL. WGT. MEAN :  | *****         | 29.9                | *****       | *****     | 0.0899                       | 3.34             | 0.545                   |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH / REVISED 23AUG83



ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : MELBOURNE/DAILY PRECIPITATION

#01

PERIOD OF REPORT : JAN 3,81 TO JAN 1,82

PAGE : 2

|                    | CALCIUM | CHLORIDE | MAGNESIUM | POTASSIUM | SODIUM | AMMONIUM<br>AS N | FREE H+<br>LAB |
|--------------------|---------|----------|-----------|-----------|--------|------------------|----------------|
|                    | MG/L    | MG/L     | MG/L      | MG/L      | MG/L   | MG/L             | MG/L           |
| # OF SAMPLES :     | 83.000  | 100.000  | 86.000    | 86.000    | 79.000 | 84.000           | 99.0000        |
| MAXIMUM :          | 2.700   | 2.100    | 0.565     | 0.920     | 0.790  | 1.890            | 0.8318         |
| MINIMUM :          | 0.040   | 0.005    | 0.002     | 0.005     | 0.010  | 0.034            | 0.0010         |
| RANGE :            | 2.660   | 2.095    | 0.563     | 0.915     | 0.780  | 1.856            | 0.8307         |
| ARITH. MEAN :      | 0.424   | 0.370    | 0.083     | 0.077     | 0.159  | 0.562            | 0.0944         |
| ARITH. STD. DEV. : | 0.508   | 0.368    | 0.107     | 0.114     | 0.137  | 0.431            | 0.1110         |
| GEOM. MEAN :       | 0.254   | 0.232    | 0.040     | 0.043     | 0.110  | 0.418            | 0.0588         |
| GEOM. STD. DEV. :  | 1.006   | 1.135    | 1.346     | 1.063     | 0.906  | 0.818            | 1.1018         |
| 1ST QUARTILE :     | 0.125   | 0.140    | 0.020     | 0.020     | 0.060  | 0.220            | 0.0376         |
| 2ND QUARTILE :     | 0.225   | 0.265    | 0.040     | 0.040     | 0.120  | 0.450            | 0.0631         |
| 3RD QUARTILE :     | 0.490   | 0.480    | 0.095     | 0.090     | 0.240  | 0.720            | 0.1023         |
| VOL. WGT. MEAN :   | 0.272   | 0.197    | 0.049     | 0.062     | 0.110  | 0.445            | 0.0669         |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : NITHGROVE/DAILY PRECIPITATION  
PERIOD OF REPORT : JAN 26.81 TO JAN 1.82

#07

PAGE : 1

|                   | PRECIP.<br>MM | CONDUCT.<br>UMHO/CM | PH<br>FIELD | PH<br>LAB | TOTAL H+<br>TO PH8.3<br>MG/L | SULPHATE<br>MG/L | NITRATE<br>AS N<br>MG/L |
|-------------------|---------------|---------------------|-------------|-----------|------------------------------|------------------|-------------------------|
| # OF SAMPLES :    | 128.0         | 80.0                | 58.00       | 115.00    | 79.0000                      | 118.00           | 118.000                 |
| MAXIMUM :         | 40.6          | 129.5               | 5.63        | 6.57      | 0.3114                       | 13.20            | 3.500                   |
| MINIMUM :         | 0.2           | 7.2                 | 3.50        | 3.47      | 0.0228                       | 0.20             | 0.005                   |
| RANGE :           | 40.4          | 122.3               | 2.13        | 3.10      | 0.2886                       | 13.00            | 3.495                   |
| ARITH. MEAN :     | 6.9           | 34.5                | 4.22        | 4.37      | 0.0979                       | 3.39             | 0.663                   |
| ARITH. STD. DEV : | 8.0           | 24.7                | 0.37        | 0.49      | 0.0570                       | 2.60             | 0.630                   |
| GEOM. MEAN :      | 3.7           | 27.7                | 4.21        | 4.35      | 0.0846                       | 2.54             | 0.439                   |
| GEOM. STD. DEV. : | 1.2           | 0.7                 | 0.09        | 0.11      | 0.5406                       | 0.80             | 1.019                   |
| 1ST QUARTILE :    | 1.6           | 15.8                | 3.98        | 4.05      | 0.0573                       | 1.42             | 0.250                   |
| 2ND QUARTILE :    | 4.0           | 27.3                | 4.18        | 4.30      | 0.0833                       | 2.85             | 0.475                   |
| 3RD QUARTILE :    | 8.9           | 43.1                | 4.44        | 4.61      | 0.1241                       | 4.18             | 0.745                   |
| VOL. WGT. MEAN :  | *****         | 30.6                | *****       | *****     | 0.0911                       | 3.05             | 0.455                   |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE  
NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH / REVISED 23AUG83

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

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STATION NAME : NIT-GROVE/DAILY PRECIPITATION

#07

PERIOD OF REPORT : JAN 26,81 TO JAN 1,82

PAGE : 2

|                    | CALCIUM | CHLORIDE | MAGNESIUM | POTASSIUM | SODIUM | AMMONIUM<br>AS N | FREE H+<br>LAB |
|--------------------|---------|----------|-----------|-----------|--------|------------------|----------------|
|                    | MG/L    | MG/L     | MG/L      | MG/L      | MG/L   | MG/L             | MG/L           |
| # OF SAMPLES :     | 93.000  | 117.000  | 92.000    | 88.000    | 97.000 | 92.000           | 115.0000       |
| MAXIMUM :          | 3.800   | 1.800    | 0.575     | 0.320     | 1.170  | 1.800            | 0.3388         |
| MINIMUM :          | 0.020   | 0.005    | 0.002     | 0.005     | 0.010  | 0.001            | 0.0003         |
| RANGE :            | 3.780   | 1.795    | 0.572     | 0.315     | 1.160  | 1.799            | 0.3386         |
| ARITH. MEAN :      | 0.379   | 0.241    | 0.056     | 0.064     | 0.103  | 0.445            | 0.0667         |
| ARITH. STD. DEV. : | 0.502   | 0.270    | 0.082     | 0.057     | 0.151  | 0.400            | 0.0608         |
| GEOM. MEAN :       | 0.212   | 0.146    | 0.026     | 0.045     | 0.062  | 0.271            | 0.0426         |
| GEOM. STD. DEV. :  | 1.100   | 1.116    | 1.252     | 0.871     | 0.951  | 1.213            | 1.1325         |
| 1ST QUARTILE :     | 0.100   | 0.080    | 0.010     | 0.030     | 0.030  | 0.128            | 0.0243         |
| 2ND QUARTILE :     | 0.200   | 0.170    | 0.020     | 0.050     | 0.060  | 0.331            | 0.0501         |
| 3RD QUARTILE :     | 0.460   | 0.285    | 0.072     | 0.090     | 0.105  | 0.670            | 0.0851         |
| VOL. WGT. MEAN :   | 0.238   | 0.141    | 0.035     | 0.041     | 0.065  | 0.357            | 0.0594         |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : NORTH EASTHOPE/DAILY PRECIPITATION #03

PERIOD OF REPORT : JAN 1,81 TO JAN 1,82

PAGE : 1

|                   | PRECIP.<br>MM | CONDUCT.<br>JMHO/CM | PH<br>FIELD | PH<br>LAB | TOTAL H+<br>TO PH8.3<br>MG/L | SULPHATE<br>MG/L | NITRATE<br>AS N<br>MG/L |
|-------------------|---------------|---------------------|-------------|-----------|------------------------------|------------------|-------------------------|
| # OF SAMPLES :    | 185.0         | 74.0                | 34.00       | 114.00    | 71.0000                      | 140.00           | 143.000                 |
| MAXIMUM :         | 60.5          | 137.0               | 6.99        | 6.80      | 0.3396                       | 28.50            | 6.000                   |
| MINIMUM :         | 0.0           | 5.6                 | 3.78        | 3.44      | 0.0220                       | 0.20             | 0.005                   |
| RANGE :           | 60.5          | 131.4               | 3.21        | 3.36      | 0.3176                       | 28.30            | 5.995                   |
| ARITH. MEAN :     | 5.0           | 39.2                | 4.42        | 4.34      | 0.0922                       | 4.70             | 0.833                   |
| ARITH. STD. DEV : | 7.8           | 28.5                | 0.60        | 0.55      | 0.0631                       | 4.29             | 0.862                   |
| GEOM. MEAN :      | 1.8           | 30.8                | 4.39        | 4.31      | 0.0777                       | 3.17             | 0.514                   |
| GEOM. STD. DEV. : | 1.6           | 0.7                 | 0.12        | 0.12      | 0.5636                       | 0.94             | 1.139                   |
| 1ST QUARTILE :    | 0.6           | 19.1                | 4.15        | 3.97      | 0.0572                       | 1.75             | 0.280                   |
| 2ND QUARTILE :    | 1.8           | 28.1                | 4.30        | 4.31      | 0.0713                       | 3.05             | 0.600                   |
| 3RD QUARTILE :    | 6.2           | 49.1                | 4.47        | 4.55      | 0.0942                       | 6.85             | 1.160                   |
| VOL. WGT. MEAN :  | *****         | 36.9                | *****       | *****     | 0.0966                       | 3.79             | 0.503                   |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH / REVISED 23AUG83

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : NORTH EASTHOPE/DAILY PRECIPITATION #03

PERIOD OF REPORT : JAN 1,81 TO JAN 1,82

PAGE : 2

|                    | CALCIUM | CHLORIDE | MAGNESIUM | POTASSIUM | SODIUM  | AMMONIUM<br>AS N | FREE H+<br>LAB |
|--------------------|---------|----------|-----------|-----------|---------|------------------|----------------|
|                    | MG/L    | MG/L     | MG/L      | MG/L      | MG/L    | MG/L             | MG/L           |
| # OF SAMPLES :     | 88.000  | 142.000  | 90.000    | 98.000    | 101.000 | 105.000          | 114.0000       |
| MAXIMUM :          | 1.410   | 6.300    | 0.275     | 0.380     | 0.970   | 4.350            | 0.3631         |
| MINIMUM :          | 0.030   | 0.005    | 0.002     | 0.005     | 0.005   | 0.001            | 0.0002         |
| RANGE :            | 1.380   | 6.295    | 0.272     | 0.375     | 0.965   | 4.349            | 0.3629         |
| ARITH. MEAN :      | 0.388   | 0.417    | 0.076     | 0.054     | 0.125   | 0.648            | 0.0759         |
| ARITH. STD. DEV. : | 0.337   | 0.664    | 0.069     | 0.061     | 0.167   | 0.672            | 0.0705         |
| GEOM. MEAN :       | 0.254   | 0.217    | 0.045     | 0.034     | 0.069   | 0.402            | 0.0453         |
| GEOM. STD. DEV. :  | 0.997   | 1.241    | 1.169     | 0.990     | 1.081   | 1.249            | 1.2669         |
| 1ST QUARTILE :     | 0.130   | 0.120    | 0.022     | 0.020     | 0.030   | 0.268            | 0.0275         |
| 2ND QUARTILE :     | 0.270   | 0.240    | 0.052     | 0.040     | 0.070   | 0.495            | 0.0495         |
| 3RD QUARTILE :     | 0.575   | 0.440    | 0.115     | 0.065     | 0.140   | 0.780            | 0.1072         |
| VOL. WGT. MEAN :   | 0.277   | 0.198    | 0.053     | 0.034     | 0.071   | 0.424            | 0.0683         |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : RAILTON/DAILY PRECIPITATION

#10

PERIOD OF REPORT : JAN 6.81 TO JAN 1.82

PAGE : 1

|                   | PRECIP. | CONDUCT. | PH    | PH    | TOTAL H+ | SULPHATE | NITRATE |
|-------------------|---------|----------|-------|-------|----------|----------|---------|
|                   | MM      | UMHO/CM  | FIELD | LAB   | TO PH8.3 | MG/L     | AS N    |
|                   |         |          |       |       | MG/L     |          | MG/L    |
| # OF SAMPLES :    | 117.0   | 66.0     | 48.00 | 99.00 | 66.0000  | 103.00   | 103.000 |
| MAXIMUM :         | 55.0    | 84.0     | 4.84  | 6.76  | 0.3068   | 22.00    | 6.000   |
| MINIMUM :         | 0.2     | 4.7      | 3.18  | 3.32  | 0.0244   | 0.35     | 0.050   |
| RANGE :           | 54.8    | 79.3     | 1.66  | 3.44  | 0.2824   | 21.65    | 5.950   |
| ARITH. MEAN :     | 8.5     | 34.3     | 4.04  | 4.28  | 0.0965   | 4.21     | 0.791   |
| ARITH. STD. DEV : | 10.5    | 16.3     | 0.40  | 0.53  | 0.0498   | 3.35     | 0.754   |
| GEOM. MEAN :      | 4.0     | 29.8     | 4.03  | 4.25  | 0.0854   | 3.13     | 0.564   |
| GEOM. STD. DEV. : | 1.3     | 0.6      | 0.10  | 0.11  | 0.5086   | 0.83     | 0.858   |
| 1ST QUARTILE :    | 1.7     | 22.1     | 3.79  | 3.95  | 0.0581   | 2.17     | 0.325   |
| 2ND QUARTILE :    | 4.0     | 34.0     | 4.11  | 4.17  | 0.0881   | 3.50     | 0.615   |
| 3RD QUARTILE :    | 12.1    | 46.1     | 4.34  | 4.46  | 0.1196   | 5.07     | 1.030   |
| VOL. WGT. MEAN :  | *****   | 29.3     | ***** | ***** | 0.0831   | 3.10     | 0.502   |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH / REVISED 23AUG83

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : RAILTON/DAILY PRECIPITATION

#10

PERIOD OF REPORT : JAN 6.81 TO JAN 1.82

PAGE : 2

|                   | CALCIUM | CHLORIDE | MAGNESIM | POTASSIM | SODIUM | AMMONIUM<br>AS N | FREE H+     |
|-------------------|---------|----------|----------|----------|--------|------------------|-------------|
|                   | MG/L    | MG/L     | MG/L     | MG/L     | MG/L   | MG/L             | LAB<br>MG/L |
| # OF SAMPLES :    | 80.000  | 101.000  | 80.000   | 87.000   | 79.000 | 90.000           | 99.0000     |
| MAXIMUM :         | 5.800   | 2.100    | 0.640    | 0.240    | 0.890  | 1.830            | 0.4786      |
| MINIMUM :         | 0.020   | 0.020    | 0.002    | 0.005    | 0.005  | 0.006            | 0.0002      |
| RANGE :           | 5.780   | 2.080    | 0.637    | 0.235    | 0.885  | 1.824            | 0.4785      |
| ARITH. MFAN :     | 0.552   | 0.364    | 0.070    | 0.058    | 0.186  | 0.484            | 0.0834      |
| ARITH. STD. DEV : | 0.766   | 0.330    | 0.094    | 0.047    | 0.188  | 0.391            | 0.0725      |
| GEOM. MEAN :      | 0.293   | 0.256    | 0.033    | 0.041    | 0.113  | 0.340            | 0.0530      |
| GEOM. STD. DEV. : | 1.168   | 0.883    | 1.358    | 0.896    | 1.099  | 0.948            | 1.2287      |
| 1ST QUARTILE :    | 0.120   | 0.145    | 0.015    | 0.025    | 0.055  | 0.194            | 0.0339      |
| 2ND QUARTILE :    | 0.310   | 0.265    | 0.035    | 0.040    | 0.120  | 0.380            | 0.0631      |
| 3RD QUARTILE :    | 0.735   | 0.475    | 0.098    | 0.080    | 0.250  | 0.690            | 0.1096      |
| VOL. WGT. MEAN :  | 0.331   | 0.205    | 0.043    | 0.041    | 0.111  | 0.365            | 0.0580      |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : RAVEN LAKE/DAILY PRECIPITATION  
PERIOD OF REPORT : FEB 1,81 TO JAN 1,82

#05

PAGE : 1

|                   | PRECIP.<br>MM | CONDUCT.<br>UMHO/CM | PH<br>FIELD | PH<br>LAB | TOTAL H+<br>TO PH8.3<br>MG/L | SULPHATE<br>MG/L | NITRATE<br>AS N<br>MG/L |
|-------------------|---------------|---------------------|-------------|-----------|------------------------------|------------------|-------------------------|
| # OF SAMPLES :    | 122.0         | 71.0                | 56.00       | 104.00    | 65.0000                      | 112.00           | 110.000                 |
| MAXIMUM :         | 37.2          | 84.5                | 6.20        | 6.60      | 0.2224                       | 15.50            | 2.900                   |
| MINIMUM :         | 0.2           | 5.3                 | 3.63        | 3.52      | 0.0226                       | 0.25             | 0.040                   |
| RANGE :           | 37.0          | 79.2                | 2.57        | 3.08      | 0.1998                       | 15.25            | 2.860                   |
| ARITH. MEAN :     | 6.5           | 32.6                | 4.23        | 4.33      | 0.0910                       | 3.80             | 0.668                   |
| ARITH. STD. DEV : | 7.1           | 18.8                | 0.37        | 0.52      | 0.0462                       | 2.96             | 0.549                   |
| GEOM. MEAN :      | 3.6           | 27.5                | 4.21        | 4.30      | 0.0799                       | 2.82             | 0.479                   |
| GEOM. STD. DEV. : | 1.2           | 0.6                 | 0.08        | 0.11      | 0.5318                       | 0.83             | 0.878                   |
| 1ST QUARTILE :    | 1.6           | 19.3                | 4.04        | 4.02      | 0.0571                       | 1.72             | 0.275                   |
| 2ND QUARTILE :    | 3.6           | 28.8                | 4.18        | 4.26      | 0.0809                       | 3.27             | 0.520                   |
| 3RD QUARTILE :    | 9.0           | 40.3                | 4.35        | 4.45      | 0.1102                       | 5.00             | 0.820                   |
| VOL. WGT. MEAN :  | *****         | 31.3                | *****       | *****     | 0.0929                       | 3.27             | 0.494                   |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE  
NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH / REVISED 23AUG83



ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : RAVEN LAKE/DAILY PRECIPITATION #05

PERIOD OF REPORT : FEB 1,81 TO JAN 1,82

PAGE : 2

|                    | CALCIUM | CHLORIDE | MAGNESIM | POTASSIM | SODIUM | AMMONIUM<br>AS N | FREE H+<br>LAB |
|--------------------|---------|----------|----------|----------|--------|------------------|----------------|
|                    | MG/L    | MG/L     | MG/L     | MG/L     | MG/L   | MG/L             | MG/L           |
| # OF SAMPLES :     | 80.000  | 103.000  | 85.000   | 88.000   | 84.000 | 92.000           | 104.0000       |
| MAXIMUM :          | 3.200   | 2.200    | 0.525    | 0.270    | 1.800  | 1.820            | 0.3020         |
| MINIMUM :          | 0.020   | 0.005    | 0.002    | 0.005    | 0.010  | 0.002            | 0.0003         |
| RANGE :            | 3.180   | 2.195    | 0.522    | 0.265    | 1.790  | 1.818            | 0.3017         |
| ARITH. MEAN :      | 0.453   | 0.318    | 0.058    | 0.044    | 0.170  | 0.442            | 0.0722         |
| ARITH. STD. DEV. : | 0.606   | 0.324    | 0.079    | 0.048    | 0.241  | 0.384            | 0.0614         |
| GEOM. MEAN :       | 0.221   | 0.209    | 0.025    | 0.027    | 0.101  | 0.267            | 0.0471         |
| GEOM. STD. DEV. :  | 1.257   | 0.989    | 1.412    | 0.978    | 1.006  | 1.258            | 1.2088         |
| 1ST QUARTILE :     | 0.085   | 0.120    | 0.010    | 0.010    | 0.060  | 0.141            | 0.0355         |
| 2ND QUARTILE :     | 0.225   | 0.200    | 0.025    | 0.030    | 0.100  | 0.323            | 0.0544         |
| 3RD QUARTILE :     | 0.600   | 0.400    | 0.085    | 0.050    | 0.185  | 0.665            | 0.0944         |
| VOL. WGT. MEAN :   | 0.266   | 0.191    | 0.036    | 0.029    | 0.106  | 0.365            | 0.0620         |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : QUETICO CENTRE/DAILY PRECIPITATION #14

PERIOD OF REPORT : OCT 16,81 TO DEC 31,81

PAGE : 1

|                   | PRECIP.<br>MM | CONDUCT.<br>JMHO/CM | PH<br>FIELD | PH<br>LAB | TOTAL H+<br>TO PH8.3<br>MG/L | SULPHATE<br>MG/L | NITRATE<br>AS N<br>MG/L |
|-------------------|---------------|---------------------|-------------|-----------|------------------------------|------------------|-------------------------|
| # OF SAMPLES :    | 29.0          | 15.0                | 4.00        | 26.00     | 10.0000                      | 25.00            | 25.000                  |
| MAXIMUM :         | 12.0          | 119.0               | 5.00        | 5.18      | 0.0976                       | 14.00            | 3.570                   |
| MINIMUM :         | 0.1           | 6.1                 | 4.35        | 3.82      | 0.0450                       | 0.15             | 0.080                   |
| RANGE :           | 11.9          | 112.9               | 0.65        | 1.36      | 0.0526                       | 13.85            | 3.490                   |
| ARITH. MEAN :     | 2.4           | 22.9                | 4.70        | 4.63      | 0.0655                       | 1.40             | 0.510                   |
| ARITH. STD. DEV : | 2.8           | 27.6                | 0.31        | 0.33      | 0.0179                       | 2.70             | 0.684                   |
| GEOM. MEAN :      | 1.4           | 16.6                | 4.69        | 4.62      | 0.0634                       | 0.73             | 0.339                   |
| GEOM. STD. DEV. : | 1.1           | 0.7                 | 0.07        | 0.07      | 0.2668                       | 1.03             | 0.843                   |
| 1ST QUARTILE :    | 0.7           | 9.8                 | 4.44        | 4.33      | 0.0488                       | 0.30             | 0.215                   |
| 2ND QUARTILE :    | 1.1           | 14.1                | 4.73        | 4.65      | 0.0611                       | 0.75             | 0.310                   |
| 3RD QUARTILE :    | 3.4           | 22.8                | 4.96        | 4.85      | 0.0770                       | 1.55             | 0.545                   |
| VOL. WGT. MEAN :  | *****         | 16.6                | *****       | *****     | 0.0638                       | 0.87             | 0.427                   |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH / REVISED 23AUG83

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

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STATION NAME : QUETICO CENTRE/DAILY PRECIPITATION #14

PERIOD OF REPORT : OCT 16,81 TO DEC 31,81

PAGE : 2

|                   | CALCIUM | CHLORIDE | MAGNESIM | POTASSIM | SODIUM | AMMONIUM     | FREE H+     |
|-------------------|---------|----------|----------|----------|--------|--------------|-------------|
|                   | MG/L    | MG/L     | MG/L     | MG/L     | MG/L   | AS N<br>MG/L | LAB<br>MG/L |
| # OF SAMPLES :    | 19.000  | 25.000   | 19.000   | 19.000   | 19.000 | 15.000       | 26.0000     |
| MAXIMUM :         | 1.450   | 0.320    | 0.155    | 0.180    | 0.250  | 0.910        | 0.1514      |
| MINIMUM :         | 0.005   | 0.005    | 0.002    | 0.005    | 0.010  | 0.006        | 0.0066      |
| RANGE :           | 1.445   | 0.315    | 0.152    | 0.175    | 0.240  | 0.904        | 0.1447      |
| ARITH. MEAN :     | 0.171   | 0.108    | 0.015    | 0.036    | 0.065  | 0.274        | 0.0315      |
| ARITH. STD. DEV : | 0.323   | 0.080    | 0.035    | 0.048    | 0.067  | 0.224        | 0.0297      |
| GEOM. MEAN :      | 0.076   | 0.076    | 0.006    | 0.021    | 0.041  | 0.167        | 0.0234      |
| GEOM. STD. DEV. : | 1.249   | 1.029    | 1.167    | 0.979    | 0.992  | 1.339        | 0.7619      |
| 1ST QUARTILE :    | 0.035   | 0.040    | 0.002    | 0.010    | 0.020  | 0.098        | 0.0129      |
| 2ND QUARTILE :    | 0.055   | 0.085    | 0.002    | 0.020    | 0.035  | 0.254        | 0.0224      |
| 3RD QUARTILE :    | 0.165   | 0.140    | 0.010    | 0.030    | 0.085  | 0.327        | 0.0403      |
| VOL. WGT. MEAN :  | 0.097   | 0.062    | 0.009    | 0.020    | 0.039  | 0.230        | 0.0303      |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

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ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : WELLESLEY/DAILY PRECIPITATION

#04

PERIOD OF REPORT : JAN 27,81 TO JAN 1,82

PAGE : 1

|                   | PRECIP.<br>MM      | CONDUCT.<br>UMHO/CM | PH<br>FIELD | PH<br>LAB | TOTAL H+<br>TO PH8.3<br>MG/L | SULPHATE<br>MG/L  | NITRATE<br>AS N<br>MG/L |
|-------------------|--------------------|---------------------|-------------|-----------|------------------------------|-------------------|-------------------------|
| # OF SAMPLES :    | 129.0              | 62.0                | 31.00       | 90.00     | 62.0000                      | 108.00            | 110.000                 |
| MAXIMUM :         | 57.2               | 124.0               | 5.66        | 6.35      | 0.3092                       | 17.00             | 3.000                   |
| MINIMUM :         | 0.1                | 4.8                 | 3.79        | 3.56      | 0.0270                       | 0.20              | 0.010                   |
| RANGE :           | 57.1               | 119.2               | 1.87        | 2.79      | 0.2822                       | 16.80             | 2.990                   |
| ARITH. MEAN :     | 6.6                | 36.8                | 4.34        | 4.32      | 0.0949                       | 4.56              | 0.822                   |
| ARITH. STD. DEV : | 9.1 <sup>1.3</sup> | 25.5                | 0.37        | 0.44      | 0.0581 <sup>61</sup>         | 3.28 <sup>7</sup> | 0.612 <sup>74</sup>     |
| GEOM. MEAN :      | 2.9                | 30.0                | 4.33        | 4.30      | 0.0818                       | 3.49              | 0.611                   |
| GEOM. STD. DEV. : | 1.4                | 0.7                 | 0.08        | 0.10      | 0.5358                       | 0.79              | 0.868                   |
| 1ST QUARTILE :    | 1.0                | 20.3                | 4.10        | 4.04      | 0.0540                       | 2.15              | 0.365                   |
| 2ND QUARTILE :    | 3.2                | 27.6                | 4.27        | 4.24      | 0.0807                       | 3.63              | 0.700                   |
| 3RD QUARTILE :    | 8.2                | 44.5                | 4.55        | 4.46      | 0.1063                       | 6.22              | 1.065                   |
| VOL. WGT. MEAN :  | *****              | 31.9                | *****       | *****     | 0.0907                       | 3.37              | 0.483                   |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH / REVISED 23AUG83

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : WELLESLEY/DAILY PRECIPITATION

#04

PERIOD OF REPORT : JAN 27,81 TO JAN 1,82

PAGE : 2

|                   | CALCIUM | CHLORIDE | MAGNESIUM | POTASSIUM | SODIUM | AMMONIUM<br>AS N | FREE H+<br>LAB |
|-------------------|---------|----------|-----------|-----------|--------|------------------|----------------|
|                   | MG/L    | MG/L     | MG/L      | MG/L      | MG/L   | MG/L             | MG/L           |
| # OF SAMPLES :    | 78.000  | 105.000  | 74.000    | 83.000    | 84.000 | 83.000           | 90.0000        |
| MAXIMUM :         | 1.710   | 2.050    | 0.365     | 0.240     | 0.630  | 5.650            | 0.2754         |
| MINIMUM :         | 0.030   | 0.005    | 0.002     | 0.005     | 0.005  | 0.046            | 0.0004         |
| RANGE :           | 1.680   | 2.045    | 0.363     | 0.235     | 0.625  | 5.604            | 0.2750         |
| ARITH. MEAN :     | 0.397   | 0.317    | 0.081     | 0.036     | 0.103  | 0.690            | 0.0689         |
| ARITH. STD. DEV : | 0.367   | 0.344    | 0.085     | 0.040     | 0.127  | 0.747            | 0.0552         |
| GEOM. MEAN :      | 0.245   | 0.170    | 0.043     | 0.024     | 0.053  | 0.483            | 0.0483         |
| GEOM. STD. DEV. : | 1.051   | 1.319    | 1.245     | 0.923     | 1.207  | 0.856            | 1.0116         |
| 1ST QUARTILE :    | 0.095   | 0.100    | 0.020     | 0.010     | 0.020  | 0.289            | 0.0331         |
| 2ND QUARTILE :    | 0.250   | 0.200    | 0.042     | 0.020     | 0.050  | 0.520            | 0.0569         |
| 3RD QUARTILE :    | 0.610   | 0.325    | 0.120     | 0.040     | 0.120  | 0.820            | 0.0891         |
| VOL. WGT. MEAN :  | 0.248   | 0.138    | 0.052     | 0.022     | 0.051  | 0.413            | 0.0639         |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : WHITMAN CREEK/DAILY PRECIPITATION #09

PERIOD OF REPORT : JAN 6,81 TO JAN 1,82

PAGE : 1

|                   | PRECIP.<br>MM | CONDUCT.<br>JMHO/CM | PH<br>FIELD | PH<br>LAB | TOTAL H+<br>TO PH8.3<br>MG/L | SULPHATE<br>MG/L | NITRATE<br>AS N<br>MG/L |
|-------------------|---------------|---------------------|-------------|-----------|------------------------------|------------------|-------------------------|
| # OF SAMPLES :    | 110.0         | 67.0                | 56.00       | 91.00     | 63.0000                      | 86.00            | 90.000                  |
| MAXIMUM :         | 51.0          | 156.0               | 5.03        | 6.65      | 0.2870                       | 17.20            | 5.600                   |
| MINIMUM :         | 0.1           | 7.2                 | 3.14        | 3.62      | 0.0244                       | 0.35             | 0.100                   |
| RANGE :           | 50.9          | 148.8               | 1.89        | 3.03      | 0.2626                       | 16.85            | 5.500                   |
| ARITH. MEAN :     | 8.9           | 37.3                | 4.08        | 4.33      | 0.0964                       | 4.13             | 0.807                   |
| ARITH. STD. DEV : | 10.9          | 25.7                | 0.41        | 0.50      | 0.0449                       | 2.99             | 0.807                   |
| GEOM. MEAN :      | 4.2           | 30.5                | 4.06        | 4.30      | 0.0872                       | 3.20             | 0.572                   |
| GEOM. STD. DEV. : | 1.3           | 0.7                 | 0.10        | 0.10      | 0.4591                       | 0.76             | 0.819                   |
| 1ST QUARTILE :    | 1.4           | 19.5                | 3.81        | 4.02      | 0.0652                       | 2.13             | 0.320                   |
| 2ND QUARTILE :    | 4.8           | 32.1                | 4.17        | 4.26      | 0.0905                       | 3.40             | 0.540                   |
| 3RD QUARTILE :    | 12.2          | 44.6                | 4.34        | 4.52      | 0.1182                       | 5.35             | 1.045                   |
| VOL. WGT. MEAN :  | *****         | 32.6                | *****       | *****     | 0.0960                       | 3.59             | 0.510                   |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH / REVISED 23AUG83

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

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STATION NAME : WHITMAN CREEK/DAILY PRECIPITATION #09

PERIOD OF REPORT : JAN 6,81 TO JAN 1,82

PAGE : 2

|                   | CALCIUM | CHLORIDE | MAGNESIUM | POTASSIUM | SODIUM | AMMONIUM<br>AS N | FREE H+<br>LAB<br>MG/L |
|-------------------|---------|----------|-----------|-----------|--------|------------------|------------------------|
|                   | MG/L    | MG/L     | MG/L      | MG/L      | MG/L   | MG/L             | MG/L                   |
| # OF SAMPLES :    | 74.000  | 82.000   | 71.000    | 80.000    | 73.000 | 86.000           | 91.0000                |
| MAXIMUM :         | 4.600   | 2.200    | 0.695     | 0.560     | 0.820  | 2.400            | 0.2399                 |
| MINIMUM :         | 0.010   | 0.005    | 0.002     | 0.005     | 0.010  | 0.001            | 0.0002                 |
| RANGE :           | 4.590   | 2.195    | 0.692     | 0.555     | 0.810  | 2.399            | 0.2397                 |
| ARITH. MEAN :     | 0.522   | 0.273    | 0.076     | 0.073     | 0.120  | 0.503            | 0.0689                 |
| ARITH. STD. DEV : | 0.787   | 0.312    | 0.113     | 0.107     | 0.151  | 0.463            | 0.0505                 |
| GEOM. MEAN :      | 0.245   | 0.187    | 0.034     | 0.037     | 0.069  | 0.320            | 0.0470                 |
| GEOM. STD. DEV. : | 1.280   | 0.875    | 1.335     | 1.142     | 1.053  | 1.156            | 1.1459                 |
| 1ST QUARTILE :    | 0.110   | 0.110    | 0.010     | 0.020     | 0.030  | 0.184            | 0.0302                 |
| 2ND QUARTILE :    | 0.265   | 0.170    | 0.032     | 0.040     | 0.075  | 0.385            | 0.0543                 |
| 3RD QUARTILE :    | 0.590   | 0.300    | 0.085     | 0.080     | 0.140  | 0.580            | 0.0933                 |
| VOL. WGT. MEAN :  | 0.309   | 0.208    | 0.052     | 0.040     | 0.093  | 0.354            | 0.0640                 |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

PART VI

SUMMARY STATISTICS OF OBSERVED CONCENTRATION BY REGION



ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : CENTRAL REGION/DAILY PRECIPITATION

PERIOD OF REPORT : JAN 1,81 TO JAN 1,82

PAGE : 1

|                   | PRECIP.<br>MM | CONDUCT.<br>JMHO/CM | PH<br>FIELD | PH<br>LAB | TOTAL H+<br>TO PH8.3<br>MG/L | SULPHATE<br>MG/L | NITRATE<br>AS N<br>MG/L |
|-------------------|---------------|---------------------|-------------|-----------|------------------------------|------------------|-------------------------|
| # OF SAMPLES :    | 510.0         | 305.0               | 234.00      | 455.00    | 297.0000                     | 461.00           | 462.000                 |
| MAXIMUM :         | 48.2          | 195.0               | 6.23        | 6.60      | 0.5116                       | 19.90            | 3.500                   |
| MINIMUM :         | 0.1           | 5.2                 | 3.24        | 3.37      | 0.0226                       | 0.02             | 0.005                   |
| RANGE :           | 48.1          | 189.8               | 2.99        | 3.23      | 0.4890                       | 19.87            | 3.495                   |
| ARITH. MEAN :     | 6.6           | 33.5                | 4.21        | 4.33      | 0.0961                       | 3.50             | 0.651                   |
| ARITH. STD. DEV : | 7.4           | 23.7                | 0.36        | 0.48      | 0.0562                       | 2.95             | 0.573                   |
| GEOM. MEAN :      | 3.5           | 27.2                | 4.20        | 4.31      | 0.0841                       | 2.46             | 0.444                   |
| GEOM. STD. DEV. : | 1.2           | 0.7                 | 0.08        | 0.10      | 0.5103                       | 0.92             | 0.969                   |
| 1ST QUARTILE :    | 1.6           | 17.8                | 4.02        | 4.05      | 0.0592                       | 1.47             | 0.260                   |
| 2ND QUARTILE :    | 3.8           | 27.1                | 4.18        | 4.29      | 0.0831                       | 2.67             | 0.500                   |
| 3RD QUARTILE :    | 8.0           | 41.7                | 4.36        | 4.52      | 0.1164                       | 4.52             | 0.810                   |
| VOL. WGT. MEAN :  | *****         | 30.6                | *****       | *****     | 0.0929                       | 3.09             | 0.471                   |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH / REVISED 23AUG83

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : CENTRAL REGION/DAILY PRECIPITATION

PERIOD OF REPORT : JAN 1,81 TO JAN 1,82

PAGE : 2

|                   | CALCIUM | CHLORIDE | MAGNESIM | POTASSIM | SODIUM  | AMMONIUM<br>AS N | FREE H+<br>LAB |
|-------------------|---------|----------|----------|----------|---------|------------------|----------------|
|                   | MG/L    | MG/L     | MG/L     | MG/L     | MG/L    | MG/L             | MG/L           |
| # OF SAMPLES :    | 366.000 | 454.000  | 374.000  | 383.000  | 383.000 | 386.000          | 455.0000       |
| MAXIMUM :         | 3.800   | 2.200    | 0.575    | 0.700    | 1.800   | 2.150            | 0.4266         |
| MINIMUM :         | 0.005   | 0.005    | 0.002    | 0.005    | 0.005   | 0.001            | 0.0003         |
| RANGE :           | 3.795   | 2.195    | 0.572    | 0.695    | 1.795   | 2.149            | 0.4263         |
| ARITH. MFAN :     | 0.350   | 0.240    | 0.051    | 0.045    | 0.111   | 0.416            | 0.0702         |
| ARITH. STD. DEV : | 0.486   | 0.276    | 0.075    | 0.068    | 0.183   | 0.389            | 0.0628         |
| GEOM. MEAN :      | 0.165   | 0.139    | 0.021    | 0.025    | 0.055   | 0.230            | 0.0463         |
| GEOM. STD. DEV. : | 1.280   | 1.176    | 1.407    | 1.073    | 1.178   | 1.374            | 1.0968         |
| 1ST QUARTILE :    | 0.070   | 0.080    | 0.005    | 0.010    | 0.030   | 0.121            | 0.0302         |
| 2ND QUARTILE :    | 0.160   | 0.160    | 0.020    | 0.030    | 0.060   | 0.308            | 0.0513         |
| 3RD QUARTILE :    | 0.455   | 0.300    | 0.070    | 0.050    | 0.120   | 0.630            | 0.0891         |
| VOL. WGT. MEAN :  | 0.231   | 0.159    | 0.034    | 0.035    | 0.072   | 0.339            | 0.0611         |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : NORTHWESTERN REGION/DAILY PRECIPITATION

PERIOD OF REPORT : SEP 23,81 TO DEC 31,81

PAGE : 1

|                   | PRECIP.<br>MM | CONDUCT.<br>JMHO/CM | PH<br>FIELD | PH<br>LAB | TOTAL H+<br>TO PH8.3<br>MG/L | SULPHATE<br>MG/L | NITRATE<br>AS N<br>MG/L |
|-------------------|---------------|---------------------|-------------|-----------|------------------------------|------------------|-------------------------|
| # OF SAMPLES :    | 107.0         | 57.0                | 18.00       | 94.00     | 49.0000                      | 86.00            | 86.000                  |
| MAXIMUM :         | 18.9          | 119.0               | 5.20        | 5.98      | 0.1070                       | 14.00            | 3.570                   |
| MINIMUM :         | 0.1           | 3.6                 | 3.81        | 3.56      | 0.0334                       | 0.10             | 0.005                   |
| RANGE :           | 18.8          | 115.4               | 1.39        | 2.42      | 0.0736                       | 13.90            | 3.565                   |
| ARITH. MEAN :     | 3.5           | 18.8                | 4.58        | 4.56      | 0.0645                       | 1.66             | 0.435                   |
| ARITH. STD. DEV : | 4.2           | 18.5                | 0.39        | 0.40      | 0.0203                       | 2.51             | 0.540                   |
| GEOM. MEAN :      | 1.6           | 14.3                | 4.56        | 4.54      | 0.0613                       | 0.85             | 0.254                   |
| GEOM. STD. DEV. : | 1.4           | 0.7                 | 0.08        | 0.09      | 0.3227                       | 1.12             | 1.154                   |
| 1ST QUARTILE :    | 0.6           | 8.1                 | 4.32        | 4.27      | 0.0488                       | 0.38             | 0.130                   |
| 2ND QUARTILE :    | 1.6           | 13.7                | 4.47        | 4.49      | 0.0611                       | 0.85             | 0.270                   |
| 3RD QUARTILE :    | 4.3           | 23.0                | 4.88        | 4.81      | 0.0814                       | 1.75             | 0.545                   |
| VOL. WGT. MEAN :  | *****         | 15.5                | *****       | *****     | 0.0635                       | 1.17             | 0.326                   |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH / REVISED 23AUG83

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

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STATION NAME : NORTHWESTERN REGION/DAILY PRECIPITATION

PERIOD OF REPORT : SEP 23,81 TO DEC 31,81

PAGE : 2

|                   | CALCIUM | CHLORIDE | MAGNESIUM | POTASSIUM | SODIUM | AMMONIUM<br>AS N | FREE H+<br>LAB |
|-------------------|---------|----------|-----------|-----------|--------|------------------|----------------|
|                   | MG/L    | MG/L     | MG/L      | MG/L      | MG/L   | MG/L             | MG/L           |
| # OF SAMPLES :    | 69.000  | 87.000   | 69.000    | 69.000    | 69.000 | 67.000           | 94.0000        |
| MAXIMUM :         | 1.450   | 0.600    | 0.155     | 0.320     | 0.420  | 2.500            | 0.2754         |
| MINIMUM :         | 0.005   | 0.005    | 0.002     | 0.005     | 0.005  | 0.001            | 0.0010         |
| RANGE :           | 1.445   | 0.595    | 0.152     | 0.315     | 0.415  | 2.499            | 0.2744         |
| ARITH. MEAN :     | 0.133   | 0.097    | 0.015     | 0.038     | 0.071  | 0.247            | 0.0406         |
| ARITH. STD. DEV : | 0.209   | 0.115    | 0.028     | 0.057     | 0.080  | 0.363            | 0.0410         |
| GEOM. MEAN :      | 0.066   | 0.048    | 0.007     | 0.021     | 0.039  | 0.110            | 0.0275         |
| GEOM. STD. DEV. : | 1.207   | 1.350    | 1.142     | 1.046     | 1.164  | 1.548            | 0.9299         |
| 1ST QUARTILE :    | 0.030   | 0.020    | 0.002     | 0.010     | 0.020  | 0.057            | 0.0150         |
| 2ND QUARTILE :    | 0.060   | 0.060    | 0.005     | 0.020     | 0.035  | 0.146            | 0.0320         |
| 3RD QUARTILE :    | 0.140   | 0.130    | 0.012     | 0.040     | 0.100  | 0.265            | 0.0519         |
| VOL. WGT. MEAN :  | 0.090   | 0.055    | 0.010     | 0.027     | 0.060  | 0.166            | 0.0334         |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : SOUTHEASTERN REGION/DAILY PRECIPITATION

PERIOD OF REPORT : JAN 1,81 TO JAN 1,82

PAGE : 1

|                   | PRECIP.<br>MM | CONDUCT.<br>JMHO/CM | PH<br>FIELD | PH<br>LAB | TOTAL H+<br>TO PH8.3<br>MG/L | SULPHATE<br>MG/L | NITRATE<br>AS N<br>MG/L |
|-------------------|---------------|---------------------|-------------|-----------|------------------------------|------------------|-------------------------|
| # OF SAMPLES :    | 536.0         | 300.0               | 226.00      | 432.00    | 300.0000                     | 438.00           | 445.000                 |
| MAXIMUM :         | 55.0          | 156.0               | 6.05        | 6.82      | 0.3068                       | 22.00            | 8.900                   |
| MINIMUM :         | 0.0           | 3.2                 | 3.09        | 3.32      | 0.0236                       | 0.02             | 0.005                   |
| RANGE :           | 55.0          | 152.8               | 2.96        | 3.50      | 0.2832                       | 21.97            | 8.895                   |
| ARITH. MEAN :     | 7.5           | 34.0                | 4.15        | 4.33      | 0.0929                       | 3.94             | 0.772                   |
| ARITH. STD. DEV : | 9.1           | 20.6                | 0.46        | 0.52      | 0.0479                       | 3.04             | 0.855                   |
| GEOM. MEAN :      | 3.5           | 28.0                | 4.13        | 4.30      | 0.0818                       | 2.88             | 0.512                   |
| GEOM. STD. DEV. : | 1.4           | 0.7                 | 0.11        | 0.11      | 0.5119                       | 0.88             | 0.977                   |
| 1ST QUARTILE :    | 1.4           | 18.4                | 3.89        | 4.00      | 0.0582                       | 1.75             | 0.305                   |
| 2ND QUARTILE :    | 4.1           | 31.3                | 4.19        | 4.24      | 0.0831                       | 3.42             | 0.540                   |
| 3RD QUARTILE :    | 9.9           | 45.8                | 4.40        | 4.52      | 0.1206                       | 5.15             | 1.000                   |
| VOL. WGT. MEAN :  | *****         | 29.7                | *****       | *****     | 0.0865                       | 3.08             | 0.505                   |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH / REVISED 23AUG83

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

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STATION NAME : SOUTHEASTERN REGION/DAILY PRECIPITATION

PERIOD OF REPORT : JAN 1,81 TO JAN 1,82

PAGE : 2

|                   | CALCIUM | CHLORIDE | MAGNESIM | POTASSIM | SODIUM  | AMMONIUM<br>AS N | FREE H <sup>+</sup><br>LAB |
|-------------------|---------|----------|----------|----------|---------|------------------|----------------------------|
|                   | MG/L    | MG/L     | MG/L     | MG/L     | MG/L    | MG/L             | MG/L                       |
| # OF SAMPLES :    | 355.000 | 430.000  | 341.000  | 378.000  | 354.000 | 405.000          | 432.0000                   |
| MAXIMUM :         | 6.600   | 2.300    | 1.400    | 0.800    | 0.890   | 2.400            | 0.4786                     |
| MINIMUM :         | 0.005   | 0.005    | 0.002    | 0.005    | 0.005   | 0.001            | 0.0002                     |
| RANGE :           | 6.595   | 2.295    | 1.397    | 0.795    | 0.885   | 2.399            | 0.4785                     |
| ARITH. MEAN :     | 0.472   | 0.289    | 0.075    | 0.058    | 0.145   | 0.457            | 0.0737                     |
| ARITH. STD. DEV : | 0.749   | 0.302    | 0.132    | 0.082    | 0.171   | 0.396            | 0.0629                     |
| GEOM. MEAN :      | 0.224   | 0.185    | 0.029    | 0.032    | 0.079   | 0.283            | 0.0472                     |
| GEOM. STD. DEV. : | 1.246   | 1.038    | 1.440    | 1.068    | 1.175   | 1.230            | 1.1875                     |
| 1ST QUARTILE :    | 0.095   | 0.110    | 0.010    | 0.012    | 0.030   | 0.166            | 0.0306                     |
| 2ND QUARTILE :    | 0.220   | 0.200    | 0.030    | 0.040    | 0.080   | 0.370            | 0.0569                     |
| 3RD QUARTILE :    | 0.525   | 0.365    | 0.075    | 0.070    | 0.190   | 0.600            | 0.1000                     |
| VOL. WGT. MEAN :  | 0.288   | 0.188    | 0.045    | 0.038    | 0.100   | 0.341            | 0.0595                     |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : SOUTHWESTERN REGION/DAILY PRECIPITATION

PERIOD OF REPORT : JAN 1,81 TO JAN 1,82

PAGE : 1

|                   | PRECIP.             | CONDUCT. | PH<br>FIELD | PH<br>LAB | TOTAL H+<br>TO PH8.3<br>MG/L | SULPHATE<br>MG/L  | NITRATE<br>AS N<br>MG/L |
|-------------------|---------------------|----------|-------------|-----------|------------------------------|-------------------|-------------------------|
|                   | MM                  | UMHO/CM  |             |           |                              |                   |                         |
| # OF SAMPLES :    | 559.0               | 276.0    | 128.00      | 390.00    | 269.0000                     | 459.00            | 464.000                 |
| MAXIMUM :         | 60.5                | 137.0    | 6.99        | 6.80      | 0.3396                       | 30.00             | 6.000                   |
| MINIMUM :         | 0.0                 | 3.9      | 3.53        | 3.08      | 0.0220                       | 0.20              | 0.005                   |
| RANGE :           | 60.5                | 133.1    | 3.46        | 3.72      | 0.3176                       | 29.80             | 5.995                   |
| ARITH. MEAN :     | 6.3                 | 35.9     | 4.39        | 4.31      | 0.0911                       | 4.57              | 0.834                   |
| ARITH. STD. DEV : | 8.2 <sup>1.30</sup> | 24.2     | 0.51        | 0.50      | 0.0537 <sup>5-9</sup>        | 3.87 <sup>4</sup> | 0.788 <sup>94</sup>     |
| GEOM. MEAN :      | 2.8                 | 29.0     | 4.36        | 4.28      | 0.0788                       | 3.29              | 0.557                   |
| GEOM. STD. DEV. : | 1.4                 | 0.7      | 0.11        | 0.11      | 0.5352                       | 0.86              | 1.018                   |
| 1ST QUARTILE :    | 1.0                 | 19.5     | 4.09        | 4.01      | 0.0562                       | 1.95              | 0.345                   |
| 2ND QUARTILE :    | 3.2                 | 29.3     | 4.26        | 4.24      | 0.0778                       | 3.38              | 0.620                   |
| 3RD QUARTILE :    | 8.0                 | 45.2     | 4.52        | 4.50      | 0.1093                       | 6.20              | 1.080                   |
| VOL. WGT. MEAN :  | *****               | 32.8     | *****       | *****     | 0.0914                       | 3.52              | 0.525                   |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH / REVISED 23AUG83

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF OBSERVED CONCENTRATIONS  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

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STATION NAME : SOUTHWESTERN REGION/DAILY PRECIPITATION

PERIOD OF REPORT : JAN 1,81 TO JAN 1,82

PAGE : 2

|                   | CALCIUM | CHLORIDE | MAGNESIM | POTASSIM | SODIUM  | AMMONIUM<br>AS N | FREE H+<br>LAB |
|-------------------|---------|----------|----------|----------|---------|------------------|----------------|
|                   | MG/L    | MG/L     | MG/L     | MG/L     | MG/L    | MG/L             | MG/L           |
| # OF SAMPLES :    | 330.000 | 451.000  | 336.000  | 364.000  | 361.000 | 372.000          | 390.0000       |
| MAXIMUM :         | 3.400   | 6.300    | 0.565    | 1.060    | 2.100   | 5.650            | 0.8318         |
| MINIMUM :         | 0.030   | 0.005    | 0.002    | 0.005    | 0.005   | 0.001            | 0.0002         |
| RANGE :           | 3.370   | 6.295    | 0.563    | 1.055    | 2.095   | 5.649            | 0.8316         |
| ARITH. MEAN :     | 0.436   | 0.362    | 0.083    | 0.063    | 0.139   | 0.613            | 0.0799         |
| ARITH. STD. DEV : | 0.464   | 0.478    | 0.091    | 0.100    | 0.182   | 0.613            | 0.0845         |
| GEOM. MEAN :      | 0.271   | 0.204    | 0.046    | 0.036    | 0.078   | 0.417            | 0.0494         |
| GEOM. STD. DEV. : | 1.007   | 1.201    | 1.225    | 1.021    | 1.108   | 0.989            | 1.1537         |
| 1ST QUARTILE :    | 0.130   | 0.115    | 0.025    | 0.020    | 0.040   | 0.260            | 0.0316         |
| 2ND QUARTILE :    | 0.275   | 0.230    | 0.050    | 0.035    | 0.080   | 0.480            | 0.0575         |
| 3RD QUARTILE :    | 0.590   | 0.450    | 0.120    | 0.070    | 0.175   | 0.760            | 0.0977         |
| VOL. WGT. MEAN :  | 0.301   | 0.182    | 0.054    | 0.041    | 0.082   | 0.431            | 0.0658         |

\*\*\*\*\* : INSUFFICIENT DATA OR NOT APPLICABLE



PART VII

SUMMARY STATISTICS OF OBSERVED DEPOSITION BY STATION

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : BALSAM LAKE/DAILY PRECIPITATION

#06

PERIOD OF REPORT : JAN 1. 81 TO JAN 1.82

PAGE : 1

|                   | PRECIP.<br>MM | FREE H+<br>FIELD<br>MG/M**2 | FREE H+<br>LAB<br>MG/M**2 | TOTAL H+<br>TO PH8.3<br>MG/M**2 | SULPHATE<br>MG/M**2 | NITRATE<br>AS N<br>MG/M**2 | CALCIUM<br>MG/M**2 |
|-------------------|---------------|-----------------------------|---------------------------|---------------------------------|---------------------|----------------------------|--------------------|
| # OF SAMPLES :    | 116.0         | 54.0000                     | 104.0000                  | 69.0000                         | 99.00               | 101.000                    | 81.000             |
| MAXIMUM :         | 31.2          | 3.5680                      | 3.2540                    | 4.0128                          | 160.60              | 19.200                     | 19.000             |
| MINIMUM :         | 0.2           | 0.0033                      | 0.0006                    | 0.0611                          | 0.29                | 0.089                      | 0.092              |
| RANGE :           | 31.0          | 3.5647                      | 3.2535                    | 3.9517                          | 160.31              | 19.111                     | 18.908             |
| ARITH. MEAN :     | 6.4           | 0.7478                      | 0.4065                    | 0.8334                          | 20.56               | 3.196                      | 1.884              |
| ARITH. STD. DEV : | 6.7           | 0.6947                      | 0.5144                    | 0.7182                          | 24.74               | 3.203                      | 2.959              |
| GEOM. MEAN :      | 3.5           | 0.4900                      | 0.1720                    | 0.5678                          | 10.91               | 1.954                      | 0.879              |
| GEOM. STD. DEV. : | 1.2           | 1.1151                      | 1.6672                    | 0.9569                          | 1.24                | 1.115                      | 1.232              |
| 1ST QUARTILE :    | 1.4           | 0.2908                      | 0.0866                    | 0.2811                          | 5.05                | 1.101                      | 0.351              |
| 2ND QUARTILE :    | 3.4           | 0.5713                      | 0.2635                    | 0.6447                          | 11.57               | 2.152                      | 0.920              |
| 3RD QUARTILE :    | 8.2           | 0.8884                      | 0.5038                    | 1.0950                          | 27.33               | 4.296                      | 1.898              |

\*\*\*\*\* : INSUFFICIENT DATA

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : BALSAM LAKE/DAILY PRECIPITATION #06

PERIOD OF REPORT : JAN 1, 81 TO JAN 1, 82

PAGE : 2

|                    | CHLORIDE | MAGNESIUM | POTASSIUM | SODIUM  | AMMONIUM<br>AS N |
|--------------------|----------|-----------|-----------|---------|------------------|
|                    | MG/M**2  | MG/M**2   | MG/M**2   | MG/M**2 | MG/M**2          |
| # OF SAMPLES :     | 101.000  | 86.000    | 92.000    | 87.000  | 88.000           |
| MAXIMUM :          | 27.040   | 2.900     | 10.570    | 2.700   | 13.420           |
| MINIMUM :          | 0.006    | 0.003     | 0.006     | 0.011   | 0.019            |
| RANGE :            | 27.034   | 2.897     | 10.564    | 2.689   | 13.401           |
| ARITH. MEAN :      | 1.216    | 0.296     | 0.297     | 0.476   | 2.412            |
| ARITH. STD. DEV. : | 2.839    | 0.521     | 1.111     | 0.595   | 2.763            |
| GEOM. MEAN :       | 0.506    | 0.103     | 0.097     | 0.237   | 1.166            |
| GEOM. STD. DEV. :  | 1.379    | 1.504     | 1.315     | 1.225   | 1.440            |
| 1ST QUARTILE :     | 0.220    | 0.030     | 0.041     | 0.095   | 0.566            |
| 2ND QUARTILE :     | 0.565    | 0.105     | 0.098     | 0.211   | 1.452            |
| 3RD QUARTILE :     | 1.272    | 0.269     | 0.197     | 0.601   | 3.602            |

\*\*\*\*\* : INSUFFICIENT DATA

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : CHARLESTON LAKE/DAILY PRECIPITATION #11

PERIOD OF REPORT : JAN 25, 81 TO JAN 1, 82

PAGE : 1

|                    | PRECIP.<br>MM | FREE H+<br>FIELD<br>MG/M**2 | FREE H+<br>LAB<br>MG/M**2 | TOTAL H+<br>TO PH9.3<br>MG/M**2 | SULPHATE<br>MG/M**2 | NITRATE<br>AS N<br>MG/M**2 | CALCIUM<br>MG/M**2 |
|--------------------|---------------|-----------------------------|---------------------------|---------------------------------|---------------------|----------------------------|--------------------|
| # OF SAMPLES :     | 168.0         | 64.0000                     | 129.0000                  | 88.0000                         | 129.00              | 130.000                    | 105.000            |
| MAXIMUM :          | 47.4          | 6.0382                      | 2.9620                    | 4.2038                          | 147.90              | 19.162                     | 8.000              |
| MINIMUM :          | 0.0           | 0.0158                      | 0.0008                    | 0.0360                          | 0.24                | 0.012                      | 0.060              |
| RANGE :            | 47.4          | 6.0225                      | 2.9612                    | 4.1678                          | 147.66              | 19.150                     | 7.940              |
| ARITH. MEAN :      | 6.0           | 1.1795                      | 0.4253                    | 0.8401                          | 20.26               | 3.317                      | 1.574              |
| ARITH. STD. DEV. : | 7.7           | 1.2946                      | 0.4983                    | 0.7256                          | 23.48               | 3.123                      | 1.728              |
| GEOM. MEAN :       | 2.4           | 0.6298                      | 0.1887                    | 0.5492                          | 10.50               | 1.913                      | 0.927              |
| GEOM. STD. DEV. :  | 1.6           | 1.2904                      | 1.5691                    | 1.0344                          | 1.29                | 1.289                      | 1.080              |
| 1ST QUARTILE :     | 0.8           | 0.3734                      | 0.0888                    | 0.2883                          | 4.01                | 1.090                      | 0.441              |
| 2ND QUARTILE :     | 2.6           | 0.7201                      | 0.2179                    | 0.6441                          | 11.89               | 2.468                      | 0.905              |
| 3RD QUARTILE :     | 8.1           | 1.3798                      | 0.6142                    | 1.2248                          | 26.63               | 4.564                      | 2.184              |

\*\*\*\*\* : INSUFFICIENT DATA

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : CHARLESTON LAKE/DAILY PRECIPITATION #11

PERIOD OF REPORT : JAN 25, 81 TO JAN 1, 82

PAGE : 2

|                    | CHLORIDE          | MAGNESIUM         | POTASSIUM         | SODIUM            | AMMONIUM                  |
|--------------------|-------------------|-------------------|-------------------|-------------------|---------------------------|
|                    | MG/M <sup>2</sup> | MG/M <sup>2</sup> | MG/M <sup>2</sup> | MG/M <sup>2</sup> | AS N<br>MG/M <sup>2</sup> |
| # OF SAMPLES :     | 128.000           | 104.000           | 109.000           | 103.000           | 120.000                   |
| MAXIMUM :          | 11.620            | 1.806             | 2.724             | 7.000             | 19.836                    |
| MINIMUM :          | 0.010             | 0.003             | 0.006             | 0.002             | 0.002                     |
| RANGE :            | 11.610            | 1.803             | 2.718             | 6.998             | 19.834                    |
| ARITH. MEAN :      | 1.147             | 0.273             | 0.227             | 0.846             | 2.353                     |
| ARITH. STD. DEV. : | 1.703             | 0.350             | 0.328             | 1.248             | 2.916                     |
| GEOM. MEAN :       | 0.538             | 0.131             | 0.120             | 0.339             | 1.046                     |
| GEOM. STD. DEV. :  | 1.372             | 1.310             | 1.154             | 1.448             | 1.672                     |
| 1ST QUARTILE :     | 0.240             | 0.049             | 0.049             | 0.119             | 0.549                     |
| 2ND QUARTILE :     | 0.706             | 0.124             | 0.120             | 0.284             | 1.400                     |
| 3RD QUARTILE :     | 1.391             | 0.382             | 0.265             | 1.037             | 3.057                     |

\*\*\*\*\* : INSUFFICIENT DATA

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

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STATION NAME : DORSET/DAILY PRECIPITATION

#08

PERIOD OF REPORT : JAN 1, 81 TO JAN 1, 82

PAGE : 1

|                   | PRECIP.<br>MM | FREE H+<br>FIELD<br>MG/M**2 | FREE H+<br>LAB<br>MG/M**2 | TOTAL H+<br>TO PH8.3<br>MG/M**2 | SULPHATE<br>MG/M**2 | NITRATE<br>AS N<br>MG/M**2 | CALCIUM<br>MG/M**2 |
|-------------------|---------------|-----------------------------|---------------------------|---------------------------------|---------------------|----------------------------|--------------------|
| # OF SAMPLES :    | 144.0         | 66.0000                     | 132.0000                  | 84.0000                         | 132.00              | 133.000                    | 112.000            |
| MAXIMUM :         | 48.2          | 6.4475                      | 3.9755                    | 5.2070                          | 185.76              | 20.000                     | 18.090             |
| MINIMUM :         | 0.1           | 0.0985                      | 0.0064                    | 0.0534                          | 0.04                | 0.007                      | 0.009              |
| RANGE :           | 48.1          | 6.3490                      | 3.9691                    | 5.1536                          | 185.72              | 19.992                     | 18.080             |
| ARITH. MEAN :     | 6.4           | 0.9642                      | 0.4226                    | 0.9206                          | 21.19               | 3.229                      | 1.451              |
| ARITH. STD. DEV : | 7.8           | 1.1393                      | 0.6156                    | 0.9503                          | 31.63               | 3.630                      | 2.503              |
| GEOM. MEAN :      | 3.3           | 0.6116                      | 0.1968                    | 0.6029                          | 8.78                | 1.687                      | 0.532              |
| GEOM. STD. DEV. : | 1.3           | 0.9332                      | 1.3351                    | 0.9444                          | 1.49                | 1.333                      | 1.500              |
| 1ST QUARTILE :    | 1.6           | 0.3694                      | 0.0767                    | 0.3418                          | 3.59                | 0.812                      | 0.189              |
| 2ND QUARTILE :    | 3.4           | 0.5374                      | 0.2290                    | 0.6149                          | 10.07               | 2.047                      | 0.484              |
| 3RD QUARTILE :    | 7.3           | 1.0505                      | 0.4742                    | 1.0401                          | 22.63               | 4.189                      | 1.503              |

\*\*\*\*\* : INSUFFICIENT DATA

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : DORSET/DAILY PRECIPITATION

#08

PERIOD OF REPORT : JAN 1, 81 TO JAN 1, 82

PAGE : 2

|                    | CHLORIDE | MAGNESIUM | POTASSIUM | SODIUM  | AMMONIUM<br>AS N |
|--------------------|----------|-----------|-----------|---------|------------------|
|                    | MG/M**2  | MG/M**2   | MG/M**2   | MG/M**2 | MG/M**2          |
| # OF SAMPLES :     | 133.000  | 111.000   | 115.000   | 115.000 | 114.000          |
| MAXIMUM :          | 12.031   | 3.819     | 5.900     | 12.939  | 18.252           |
| MINIMUM :          | 0.012    | 0.002     | 0.003     | 0.015   | 0.000            |
| RANGE :            | 12.019   | 3.817     | 5.897     | 12.924  | 18.252           |
| ARITH. MEAN :      | 0.927    | 0.228     | 0.236     | 0.432   | 2.374            |
| ARITH. STD. DEV. : | 1.437    | 0.462     | 0.592     | 1.253   | 3.013            |
| GEOM. MEAN :       | 0.444    | 0.074     | 0.090     | 0.176   | 0.834            |
| GEOM. STD. DEV. :  | 1.250    | 1.564     | 1.391     | 1.198   | 1.994            |
| 1ST QUARTILE :     | 0.194    | 0.020     | 0.037     | 0.061   | 0.350            |
| 2ND QUARTILE :     | 0.444    | 0.067     | 0.087     | 0.158   | 1.367            |
| 3RD QUARTILE :     | 1.007    | 0.209     | 0.244     | 0.375   | 2.793            |

\*\*\*\*\* : INSUFFICIENT DATA -

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : FERNBERG/DAILY PRECIPITATION

#16

PERIOD OF REPORT : OCT 1. 81 TO DEC 31.81

PAGE : 1

|                    | PRECIP.<br>MM | FREE H+<br>FIELD<br>MG/M**2 | FREE H+<br>LAB<br>MG/M**2 | TOTAL H+<br>TO PH8.3<br>MG/M**2 | SULPHATE<br>MG/M**2 | NITRATE<br>AS N<br>MG/M**2 | CALCIUM<br>MG/M**2 |
|--------------------|---------------|-----------------------------|---------------------------|---------------------------------|---------------------|----------------------------|--------------------|
| # OF SAMPLES :     | 25.0          | 3.0000                      | 23.0000                   | 17.0000                         | 23.00               | 23.000                     | 21.000             |
| MAXIMUM :          | 14.0          | 0.2517                      | 0.9250                    | 1.2572                          | 14.16               | 10.080                     | 2.100              |
| MINIMUM :          | 0.1           | 0.0408                      | 0.0074                    | 0.1156                          | 0.15                | 0.004                      | 0.006              |
| RANGE :            | 13.9          | 0.2109                      | 0.9176                    | 1.1416                          | 14.00               | 10.076                     | 2.094              |
| ARITH. MEAN :      | 4.7           | 0.1415                      | 0.1362                    | 0.3673                          | 3.92                | 1.345                      | 0.342              |
| ARITH. STD. DEV. : | 4.1           | 0.1058                      | 0.1988                    | 0.2809                          | 3.61                | 2.115                      | 0.484              |
| GEOM. MEAN :       | 2.7           | 0.1107                      | 0.0656                    | 0.2992                          | 2.36                | 0.557                      | 0.136              |
| GEOM. STD. DEV. :  | 1.3           | 0.9222                      | 1.2731                    | 0.6276                          | 1.20                | 1.700                      | 1.582              |
| 1ST QUARTILE :     | 1.1           | *****                       | 0.0213                    | 0.1886                          | 0.98                | 0.336                      | 0.043              |
| 2ND QUARTILE :     | 3.6           | *****                       | 0.0676                    | 0.2196                          | 3.02                | 0.775                      | 0.180              |
| 3RD QUARTILE :     | 5.9           | *****                       | 0.1387                    | 0.4800                          | 4.62                | 1.047                      | 0.380              |

\*\*\*\*\* : INSUFFICIENT DATA

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH



ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : FERNBERG/DAILY PRECIPITATION

#16

PERIOD OF REPORT : OCT 1, 81 TO DEC 31, 81

PAGE : 2

|                    | CHLORIDE | MAGNESIM | POTASSIM | SODIUM  | AMMONIUM<br>AS N |
|--------------------|----------|----------|----------|---------|------------------|
|                    | MG/M**2  | MG/M**2  | MG/M**2  | MG/M**2 | MG/M**2          |
| # OF SAMPLES :     | 24.000   | 21.000   | 21.000   | 21.000  | 21.000           |
| MAXIMUM :          | 0.840    | 0.406    | 0.385    | 1.475   | 1.624            |
| MINIMUM :          | 0.013    | 0.002    | 0.006    | 0.006   | 0.001            |
| RANGE :            | 0.827    | 0.404    | 0.379    | 1.469   | 1.623            |
| ARITH. MEAN :      | 0.172    | 0.059    | 0.104    | 0.251   | 0.536            |
| ARITH. STD. DEV. : | 0.202    | 0.105    | 0.105    | 0.352   | 0.499            |
| GEOM. MEAN :       | 0.098    | 0.022    | 0.062    | 0.112   | 0.195            |
| GEOM. STD. DEV. :  | 1.091    | 1.381    | 1.104    | 1.385   | 2.194            |
| 1ST QUARTILE :     | 0.048    | 0.010    | 0.028    | 0.040   | 0.075            |
| 2ND QUARTILE :     | 0.074    | 0.015    | 0.059    | 0.099   | 0.417            |
| 3RD QUARTILE :     | 0.215    | 0.043    | 0.126    | 0.291   | 0.723            |

\*\*\*\*\* : INSUFFICIENT DATA

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : FORBES TWSP./DAILY PRECIPITATION #13

PERIOD OF REPORT : SEP 23, 81 TO DEC 31, 81

PAGE : 1

|                   | PRECIP.<br>MM | FREE H+<br>FIELD<br>MG/M**2 | FREE H+<br>LAB<br>MG/M**2 | TOTAL H+<br>TO PH8.3<br>MG/M**2 | SULPHATE<br>MG/M**2 | NITRATE<br>AS N<br>MG/M**2 | CALCIUM<br>MG/M**2 |
|-------------------|---------------|-----------------------------|---------------------------|---------------------------------|---------------------|----------------------------|--------------------|
| # OF SAMPLES :    | 44.0          | 10.0000                     | 36.0000                   | 18.0000                         | 31.00               | 31.000                     | 24.000             |
| MAXIMUM :         | 18.9          | 0.9693                      | 1.0628                    | 1.7615                          | 45.36               | 3.780                      | 1.500              |
| MINIMUM :         | 0.1           | 0.0389                      | 0.0010                    | 0.0666                          | 0.04                | 0.004                      | 0.039              |
| RANGE :           | 18.8          | 0.9304                      | 1.0618                    | 1.6949                          | 45.32               | 3.776                      | 1.461              |
| ARITH. MEAN :     | 3.3           | 0.2994                      | 0.1318                    | 0.3894                          | 6.19                | 1.066                      | 0.468              |
| ARITH. STD. DEV : | 4.8           | 0.3056                      | 0.2086                    | 0.4163                          | 9.83                | 1.026                      | 0.467              |
| GEOM. MEAN :      | 1.2           | 0.1926                      | 0.0471                    | 0.2650                          | 1.91                | 0.482                      | 0.268              |
| GEOM. STD. DEV. : | 1.5           | 1.0168                      | 1.5669                    | 0.8639                          | 1.79                | 1.723                      | 1.145              |
| 1ST QUARTILE :    | 0.4           | 0.0886                      | 0.0161                    | 0.1391                          | 0.61                | 0.192                      | 0.110              |
| 2ND QUARTILE :    | 1.3           | 0.2108                      | 0.0372                    | 0.2391                          | 1.90                | 0.742                      | 0.302              |
| 3RD QUARTILE :    | 3.2           | 0.2634                      | 0.1751                    | 0.4197                          | 8.09                | 1.550                      | 0.803              |

\*\*\*\*\* : INSUFFICIENT DATA

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : FORBES TWSP./DAILY PRECIPITATION #13

PERIOD OF REPORT : SEP 23, 81 TO DEC 31, 81

PAGE : 2

|                    | CHLORIDE | MAGNESIM | POTASSIM | SODIUM  | AMMONIUM<br>AS N |
|--------------------|----------|----------|----------|---------|------------------|
|                    | MG/M**2  | MG/M**2  | MG/M**2  | MG/M**2 | MG/M**2          |
| # OF SAMPLES :     | 31.000   | 24.000   | 24.000   | 24.000  | 24.000           |
| MAXIMUM :          | 3.300    | 0.300    | 1.024    | 3.450   | 2.759            |
| MINIMUM :          | 0.005    | 0.003    | 0.006    | 0.016   | 0.005            |
| RANGE :            | 3.295    | 0.297    | 1.017    | 3.434   | 2.754            |
| ARITH. MEAN :      | 0.231    | 0.052    | 0.154    | 0.390   | 0.815            |
| ARITH. STD. DEV. : | 0.593    | 0.069    | 0.249    | 0.784   | 0.857            |
| GEOM. MEAN :       | 0.070    | 0.026    | 0.070    | 0.125   | 0.349            |
| GEOM. STD. DEV. :  | 1.478    | 1.190    | 1.236    | 1.421   | 1.667            |
| 1ST QUARTILE :     | 0.023    | 0.010    | 0.025    | 0.040   | 0.130            |
| 2ND QUARTILE :     | 0.060    | 0.023    | 0.075    | 0.102   | 0.486            |
| 3RD QUARTILE :     | 0.200    | 0.063    | 0.119    | 0.226   | 1.242            |

\*\*\*\*\* : INSUFFICIENT DATA

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : GRAHAM LAKE/DAILY PRECIPITATION #12

PERIOD OF REPORT : JAN 1, 81 TO JAN 1, 82

PAGE : 1

|                    | PRECIP.<br>MM | FREE H+<br>FIELD<br>MG/M**2 | FREE H+<br>LAB<br>MG/M**2 | TOTAL H+<br>TO PH8.3<br>MG/M**2 | SULPHATE<br>MG/M**2 | NITRATE<br>AS N<br>MG/M**2 | CALCIUM<br>MG/M**2 |
|--------------------|---------------|-----------------------------|---------------------------|---------------------------------|---------------------|----------------------------|--------------------|
| # OF SAMPLES :     | 141.0         | 57.0000                     | 111.0000                  | 82.0000                         | 118.00              | 120.000                    | 95.000             |
| MAXIMUM :          | 38.0          | 4.4068                      | 2.8088                    | 3.9996                          | 150.15              | 61.920                     | 47.520             |
| MINIMUM :          | 0.1           | 0.0149                      | 0.0003                    | 0.0698                          | 0.62                | 0.040                      | 0.094              |
| RANGE :            | 37.9          | 4.3919                      | 2.8085                    | 3.9298                          | 149.53              | 61.880                     | 47.426             |
| ARITH. MEAN :      | 7.3           | 0.8620                      | 0.4460                    | 0.8418                          | 22.98               | 4.458                      | 3.130              |
| ARITH. STD. DEV. : | 7.6           | 0.9797                      | 0.5712                    | 0.7907                          | 25.83               | 6.689                      | 5.457              |
| GEOM. MEAN :       | 4.1           | 0.4921                      | 0.2044                    | 0.5963                          | 13.24               | 2.388                      | 1.576              |
| GEOM. STD. DEV. :  | 1.2           | 1.1531                      | 1.5463                    | 0.8515                          | 1.15                | 1.245                      | 1.157              |
| 1ST QUARTILE :     | 2.1           | 0.2598                      | 0.1040                    | 0.3709                          | 6.52                | 1.343                      | 0.635              |
| 2ND QUARTILE :     | 4.8           | 0.4695                      | 0.2346                    | 0.6075                          | 14.28               | 2.822                      | 1.418              |
| 3RD QUARTILE :     | 9.6           | 1.0814                      | 0.5690                    | 0.9340                          | 29.36               | 5.223                      | 3.397              |

\*\*\*\*\* : INSUFFICIENT DATA.

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : GRAHAM LAKE/DAILY PRECIPITATION

#12

PERIOD OF REPORT : JAN 1. 81 TO JAN 1.82

PAGE : 2

|                   | CHLORIDE | MAGNESIM | POTASSIM | SODIUM  | AMMONIUM<br>AS N |
|-------------------|----------|----------|----------|---------|------------------|
|                   | MG/M**2  | MG/M**2  | MG/M**2  | MG/M**2 | MG/M**2          |
| # OF SAMPLES :    | 117.000  | 85.000   | 100.000  | 97.000  | 107.000          |
| MAXIMUM :         | 9.860    | 10.080   | 9.000    | 7.106   | 16.830           |
| MINIMUM :         | 0.048    | 0.008    | 0.017    | 0.049   | 0.004            |
| RANGE :           | 9.812    | 10.071   | 7.983    | 7.057   | 16.826           |
| ARITH. MEAN :     | 1.530    | 0.533    | 0.412    | 0.869   | 2.934            |
| ARITH. STD. DEV : | 1.656    | 1.165    | 0.830    | 1.137   | 2.972            |
| GEOM. MEAN :      | 0.985    | 0.220    | 0.236    | 0.536   | 1.546            |
| GEOM. STD. DEV. : | 0.972    | 1.318    | 0.990    | 0.949   | 1.435            |
| 1ST QUARTILE :    | 0.516    | 0.089    | 0.124    | 0.286   | 0.835            |
| 2ND QUARTILE :    | 1.054    | 0.186    | 0.232    | 0.510   | 2.191            |
| 3RD QUARTILE :    | 1.936    | 0.551    | 0.426    | 0.913   | 3.807            |

\*\*\*\*\* : INSUFFICIENT DATA

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : LAC LA CROIX/DAILY PRECIPITATION #15  
PERIOD OF REPORT : SEP 23, 81 TO DEC 12, 81

PAGE : 1

|                    | PRECIP.<br>MM | FREE H+<br>FIELD<br>MG/M**2 | FREE H+<br>LAB<br>MG/M**2 | TOTAL H+<br>TO PH8.3<br>MG/M**2 | SULPHATE<br>MG/M**2 | NITRATE<br>AS N<br>MG/M**2 | CALCIUM<br>MG/M**2 |
|--------------------|---------------|-----------------------------|---------------------------|---------------------------------|---------------------|----------------------------|--------------------|
| # OF SAMPLES :     | 9.0           | 1.0000                      | 9.0000                    | 4.0000                          | 7.00                | 7.000                      | 5.000              |
| MAXIMIUM :         | 13.1          | 0.3692                      | 0.6166                    | 1.0700                          | 23.50               | 8.500                      | 2.700              |
| MINIMIUM :         | 0.3           | 0.3692                      | 0.0094                    | 0.3887                          | 0.44                | 0.108                      | 0.057              |
| RANGE :            | 12.8          | 0.0                         | 0.6072                    | 0.6813                          | 23.06               | 8.392                      | 2.643              |
| ARITH. MEAN :      | 4.4           | *****                       | 0.1476                    | 0.5996                          | 7.11                | 2.349                      | 0.926              |
| ARITH. STD. DEV. : | 4.6           | *****                       | 0.1871                    | 0.3160                          | 7.62                | 2.918                      | 1.065              |
| GEOM. MEAN :       | 2.3           | *****                       | 0.0793                    | 0.5504                          | 4.29                | 1.170                      | 0.438              |
| GEOM. STD. DEV. :  | 1.3           | *****                       | 1.2456                    | 0.4521                          | 1.22                | 1.402                      | 1.557              |
| 1ST QUARTILE :     | 0.8           | *****                       | 0.0339                    | 0.4275                          | 1.45                | 0.314                      | 0.099              |
| 2ND QUARTILE :     | 1.6           | *****                       | 0.0758                    | 0.4698                          | 4.55                | 0.952                      | 0.463              |
| 3RD QUARTILE :     | 5.6           | *****                       | 0.1410                    | 0.7716                          | 7.12                | 2.705                      | 0.866              |

\*\*\*\*\* : INSUFFICIENT DATA  
NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : LAC LA CROIX/DAILY PRECIPITATION #15  
PERIOD OF REPORT : SEP 23, 81 TO DEC 12, 81

PAGE : 2

|                    | CHLORIDE | MAGNESIM | POTASSIM | SODIUM  | AMMONIUM        |
|--------------------|----------|----------|----------|---------|-----------------|
|                    | MG/M**2  | MG/M**2  | MG/M**2  | MG/M**2 | AS N<br>MG/M**2 |
| # OF SAMPLES :     | 7.000    | 5.000    | 5.000    | 5.000   | 7.000           |
| MAXIMUM :          | 0.900    | 0.150    | 0.786    | 1.100   | 5.500           |
| MINIMUM :          | 0.095    | 0.006    | 0.006    | 0.070   | 0.038           |
| RANGE :            | 0.805    | 0.144    | 0.780    | 1.030   | 5.462           |
| ARITH. MEAN :      | 0.405    | 0.056    | 0.298    | 0.430   | 1.301           |
| ARITH. STD. DEV. : | 0.276    | 0.057    | 0.333    | 0.423   | 1.891           |
| GEOM. MEAN :       | 0.319    | 0.034    | 0.118    | 0.256   | 0.577           |
| GEOM. STD. DEV. :  | 0.793    | 1.220    | 1.905    | 1.242   | 1.518           |
| 1ST QUARTILE :     | 0.118    | 0.012    | 0.038    | 0.070   | 0.187           |
| 2ND QUARTILE :     | 0.326    | 0.030    | 0.100    | 0.231   | 0.612           |
| 3RD QUARTILE :     | 0.522    | 0.054    | 0.314    | 0.455   | 1.006           |

\*\*\*\*\* : INSUFFICIENT DATA

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : LONGWOODS/DAILY PRECIPITATION

#02

PERIOD OF REPORT : DEC 31. 80 TO JAN 1.82

PAGE : 1

|                   | PRECIP.<br>MM | FREE H+<br>FIELD<br>MG/M**2 | FREE H+<br>LAB<br>MG/M**2 | TOTAL H+<br>TO PH8.3<br>MG/M**2 | SULPHATE<br>MG/M**2 | NITRATE<br>AS N<br>MG/M**2 | CALCIUM<br>MG/M**2 |
|-------------------|---------------|-----------------------------|---------------------------|---------------------------------|---------------------|----------------------------|--------------------|
| # OF SAMPLES :    | 125.0         | 30.0000                     | 87.0000                   | 72.0000                         | 110.00              | 110.000                    | 81.000             |
| MAXIMUM :         | 53.0          | 3.1936                      | 3.3890                    | 4.0537                          | 199.20              | 23.634                     | 47.077             |
| MINIMUM :         | 0.1           | 0.0046                      | 0.0039                    | 0.0578                          | 0.28                | 0.031                      | 0.285              |
| RANGE :           | 52.9          | 3.1890                      | 3.3851                    | 3.9959                          | 198.92              | 23.603                     | 46.792             |
| ARITH. MEAN :     | 7.3           | 0.7954                      | 0.5769                    | 0.9544                          | 28.81               | 4.577                      | 3.980              |
| ARITH. STD. DEV : | 8.3           | 0.7924                      | 0.6912                    | 0.9753                          | 33.71               | 4.400                      | 6.305              |
| GEOM. MEAN :      | 3.8           | 0.4048                      | 0.2621                    | 0.5528                          | 14.70               | 2.591                      | 2.320              |
| GEOM. STD. DEV. : | 1.3           | 1.5328                      | 1.4884                    | 1.1445                          | 1.31                | 1.274                      | 0.970              |
| 1ST QUARTILE :    | 1.6           | 0.2282                      | 0.1156                    | 0.2291                          | 6.12                | 1.173                      | 1.142              |
| 2ND QUARTILE :    | 4.1           | 0.5449                      | 0.3155                    | 0.6742                          | 15.77               | 3.478                      | 2.256              |
| 3RD QUARTILE :    | 9.4           | 1.0098                      | 0.8080                    | 1.3508                          | 37.94               | 5.909                      | 3.958              |

\*\*\*\*\* : INSUFFICIENT DATA

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH



ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

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STATION NAME : LONGWOODS/DAILY PRECIPITATION

#02

PERIOD OF REPORT : DEC 31, 80 TO JAN 1, 82

PAGE : 2

|                    | CHLORIDE | MAGNESIUM | POTASSIUM | SODIUM  | AMMONIUM<br>AS N |
|--------------------|----------|-----------|-----------|---------|------------------|
|                    | MG/M**2  | MG/M**2   | MG/M**2   | MG/M**2 | MG/M**2          |
| # OF SAMPLES :     | 104.000  | 86.000    | 97.000    | 97.000  | 100.000          |
| MAXIMUM :          | 7.850    | 5.280     | 2.608     | 5.966   | 19.422           |
| MINIMUM :          | 0.020    | 0.015     | 0.012     | 0.054   | 0.031            |
| RANGE :            | 7.830    | 5.265     | 2.596     | 5.912   | 19.391           |
| ARITH. MEAN :      | 1.651    | 0.570     | 0.429     | 0.868   | 3.843            |
| ARITH. STD. DEV. : | 1.395    | 0.720     | 0.428     | 0.916   | 4.138            |
| GEOM. MEAN :       | 1.040    | 0.340     | 0.273     | 0.548   | 2.084            |
| GEOM. STD. DEV. :  | 1.166    | 1.066     | 1.030     | 1.026   | 1.270            |
| 1ST QUARTILE :     | 0.669    | 0.165     | 0.127     | 0.246   | 0.925            |
| 2ND QUARTILE :     | 1.299    | 0.382     | 0.298     | 0.582   | 2.489            |
| 3RD QUARTILE :     | 2.167    | 0.639     | 0.537     | 1.129   | 4.818            |

\*\*\*\*\* : INSUFFICIENT DATA

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : MELBOURNE/DAILY PRECIPITATION #01

PERIOD OF REPORT : JAN 3. 81 TO JAN 1.82

PAGE : 1

|                   | PRECIP.<br>MM | FREE H+<br>FIELD<br>MG/M**2 | FREE H+<br>LAB<br>MG/M**2 | TOTAL H+<br>TO PH8.3<br>MG/M**2 | SULPHATE<br>MG/M**2 | NITRATE<br>AS N<br>MG/M**2 | CALCIUM<br>MG/M**2 |
|-------------------|---------------|-----------------------------|---------------------------|---------------------------------|---------------------|----------------------------|--------------------|
| # OF SAMPLES :    | 120.0         | 33.0000                     | 99.0000                   | 64.0000                         | 101.00              | 101.000                    | 83.000             |
| MAXIMUM :         | 45.2          | 2.2654                      | 2.9491                    | 3.9816                          | 127.98              | 17.380                     | 10.682             |
| MINIMUM :         | 0.1           | 0.0076                      | 0.0087                    | 0.0828                          | 0.80                | 0.042                      | 0.182              |
| RANGE :           | 45.1          | 2.2577                      | 2.9404                    | 3.8988                          | 127.18              | 17.338                     | 10.500             |
| ARITH. MEAN :     | 6.7           | 0.7317                      | 0.4979                    | 0.9890                          | 25.89               | 4.233                      | 2.441              |
| ARITH. STD. DEV : | 7.6           | 0.6147                      | 0.5274                    | 0.7296                          | 23.16               | 3.316                      | 2.363              |
| GEOM. MEAN :      | 3.7           | 0.3882                      | 0.2567                    | 0.7305                          | 16.99               | 2.824                      | 1.569              |
| GEOM. STD. DEV. : | 1.2           | 1.4721                      | 1.3570                    | 0.8608                          | 1.02                | 1.061                      | 0.981              |
| 1ST QUARTILE :    | 1.6           | 0.1935                      | 0.1055                    | 0.4178                          | 10.01               | 1.596                      | 0.743              |
| 2ND QUARTILE :    | 3.9           | 0.5438                      | 0.3348                    | 0.8532                          | 17.73               | 3.014                      | 1.545              |
| 3RD QUARTILE :    | 8.8           | 1.0623                      | 0.7094                    | 1.4688                          | 37.88               | 5.960                      | 3.180              |

\*\*\*\*\* : INSUFFICIENT DATA

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH

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ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

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STATION NAME : MELBOURNE/DAILY PRECIPITATION #01  
PERIOD OF REPORT : JAN 3, 81 TO JAN 1, 82

PAGE : 2

|                   | CHLORIDE | MAGNESIM | POTASSIM | SODIUM  | AMMONIUM<br>AS N |
|-------------------|----------|----------|----------|---------|------------------|
|                   | MG/M**2  | MG/M**2  | MG/M**2  | MG/M**2 | MG/M**2          |
| # OF SAMPLES :    | 100.000  | 86.000   | 86.000   | 79.000  | 84.000           |
| MAXIMUM :         | 7.584    | 1.960    | 6.342    | 5.688   | 45.738           |
| MINIMUM :         | 0.027    | 0.013    | 0.027    | 0.058   | 0.190            |
| RANGE :           | 7.557    | 1.947    | 6.315    | 5.630   | 45.548           |
| ARITH. MEAN :     | 1.531    | 0.432    | 0.533    | 0.998   | 4.004            |
| ARITH. STD. DEV : | 1.235    | 0.441    | 1.060    | 0.980   | 5.395            |
| GEOM. MEAN :      | 1.120    | 0.241    | 0.255    | 0.688   | 2.588            |
| GEOM. STD. DEV. : | 0.891    | 1.221    | 1.085    | 0.890   | 0.952            |
| 1ST QUARTILE :    | 0.724    | 0.116    | 0.112    | 0.378   | 1.435            |
| 2ND QUARTILE :    | 1.242    | 0.237    | 0.240    | 0.696   | 2.844            |
| 3RD QUARTILE :    | 1.912    | 0.606    | 0.490    | 1.350   | 4.956            |

\*\*\*\*\* : INSUFFICIENT DATA

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : NITHGROVE/DAILY PRECIPITATION

#07

PERIOD OF REPORT : JAN 26, 81 TO JAN 1, 82

PAGE : 1

|                    | PRECIP.<br>MM | FREE H+<br>FIELD<br>MG/M**2 | FREE H+<br>LAB<br>MG/M**2 | TOTAL H+<br>TO PH8.3<br>MG/M**2 | SULPHATE<br>MG/M**2 | NITRATE<br>AS N<br>MG/M**2 | CALCIUM<br>MG/M**2 |
|--------------------|---------------|-----------------------------|---------------------------|---------------------------------|---------------------|----------------------------|--------------------|
| # OF SAMPLES :     | 128.0         | 58.0000                     | 115.0000                  | 79.0000                         | 118.00              | 118.000                    | 93.000             |
| MAXIMUM :          | 40.6          | 6.5173                      | 4.7214                    | 5.9710                          | 197.75              | 21.700                     | 18.626             |
| MINIMUM :          | 0.2           | 0.0054                      | 0.0004                    | 0.0502                          | 0.28                | 0.008                      | 0.090              |
| RANGE :            | 40.4          | 6.5119                      | 4.7209                    | 5.9208                          | 197.47              | 21.692                     | 18.536             |
| ARITH. MEAN :      | 6.9           | 0.9645                      | 0.4349                    | 0.9060                          | 22.39               | 3.323                      | 2.056              |
| ARITH. STD. DEV. : | 8.0           | 1.1727                      | 0.6747                    | 0.9966                          | 31.32               | 3.466                      | 2.822              |
| GEOM. MEAN :       | 3.7           | 0.5575                      | 0.1809                    | 0.5932                          | 10.78               | 1.843                      | 1.114              |
| GEOM. STD. DEV. :  | 1.2           | 1.1482                      | 1.5589                    | 0.9261                          | 1.31                | 1.328                      | 1.116              |
| 1ST QUARTILE :     | 1.6           | 0.2852                      | 0.0800                    | 0.2921                          | 4.43                | 1.194                      | 0.497              |
| 2ND QUARTILE :     | 4.0           | 0.5873                      | 0.2300                    | 0.6357                          | 11.77               | 2.287                      | 1.128              |
| 3RD QUARTILE :     | 8.9           | 1.1633                      | 0.4617                    | 1.0668                          | 24.83               | 4.524                      | 2.070              |

\*\*\*\*\* : INSUFFICIENT DATA

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : NITHGROVE/DAILY PRECIPITATION #07

PERIOD OF REPORT : JAN 26, 81 TO JAN 1, 82

PAGE : 2

|                    | CHLORIDE | MAGNESIM | POTASSIM | SODIUM  | AMMONIUM<br>AS N |
|--------------------|----------|----------|----------|---------|------------------|
|                    | MG/M**2  | MG/M**2  | MG/M**2  | MG/M**2 | MG/M**2          |
| # OF SAMPLES :     | 117.000  | 92.000   | 88.000   | 97.000  | 92.000           |
| MAXIMUM :          | 5.920    | 3.886    | 1.742    | 3.948   | 18.600           |
| MINIMUM :          | 0.012    | 0.006    | 0.015    | 0.035   | 0.001            |
| RANGE :            | 5.908    | 3.879    | 1.727    | 3.913   | 18.599           |
| ARITH. MEAN :      | 1.045    | 0.305    | 0.352    | 0.555   | 2.962            |
| ARITH. STD. DEV. : | 1.076    | 0.528    | 0.314    | 0.694   | 3.837            |
| GEOM. MEAN :       | 0.667    | 0.139    | 0.237    | 0.329   | 1.313            |
| GEOM. STD. DEV. :  | 1.149    | 1.268    | 0.968    | 1.009   | 1.539            |
| 1ST QUARTILE :     | 0.337    | 0.051    | 0.133    | 0.160   | 0.685            |
| 2ND QUARTILE :     | 0.741    | 0.151    | 0.300    | 0.315   | 1.435            |
| 3RD QUARTILE :     | 1.380    | 0.337    | 0.455    | 0.608   | 3.347            |

\*\*\*\*\* : INSUFFICIENT DATA

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : NORTH EASTHOPE/DAILY PRECIPITATION #03  
PERIOD OF REPORT : JAN 1, 81 TO JAN 1, 82

|                   | PRECIP.<br>MM | FREE H+<br>FIELD<br>MG/M**2 | FREE H+<br>LAB<br>MG/M**2 | TOTAL H+<br>TO PH8.3<br>MG/M**2 | SULPHATE<br>MG/M**2 | NITRATE<br>AS N<br>MG/M**2 | CALCIUM<br>MG/M**2 |
|-------------------|---------------|-----------------------------|---------------------------|---------------------------------|---------------------|----------------------------|--------------------|
| # OF SAMPLES :    | 185.0         | 34.0000                     | 114.0000                  | 71.0000                         | 140.00              | 143.000                    | 88.000             |
| MAXIMUM :         | 60.5          | 2.6082                      | 4.0545                    | 5.2100                          | 217.50              | 19.000                     | 14.720             |
| MINIMUM :         | 0.0           | 0.0016                      | 0.0001                    | 0.0447                          | 0.28                | 0.012                      | 0.091              |
| RANGE :           | 60.5          | 2.6066                      | 4.0544                    | 5.1653                          | 217.22              | 18.988                     | 14.629             |
| ARITH. MEAN :     | 5.0           | 0.6809                      | 0.4830                    | 1.0642                          | 23.54               | 3.155                      | 2.537              |
| ARITH. STD. DEV : | 7.8           | 0.5793                      | 0.6798                    | 1.0896                          | 34.48               | 3.576                      | 2.895              |
| GEOM. MEAN :      | 1.8           | 0.3860                      | 0.1488                    | 0.6071                          | 8.86                | 1.453                      | 1.413              |
| GEOM. STD. DEV. : | 1.6           | 1.5529                      | 1.9472                    | 1.1894                          | 1.57                | 1.507                      | 1.148              |
| 1ST QUARTILE :    | 0.6           | 0.3385                      | 0.0520                    | 0.2416                          | 2.41                | 0.584                      | 0.566              |
| 2ND QUARTILE :    | 1.8           | 0.5507                      | 0.2121                    | 0.7760                          | 11.53               | 1.986                      | 1.567              |
| 3RD QUARTILE :    | 6.2           | 0.8143                      | 0.5834                    | 1.3945                          | 29.56               | 4.263                      | 3.175              |

\*\*\*\*\* : INSUFFICIENT DATA  
NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : NORTH EASTHOPE/DAILY PRECIPITATION #03

PERIOD OF REPORT : JAN 1, 81 TO JAN 1, 82

PAGE : 2

|                    | CHLORIDE<br>MG/M**2 | MAGNESIM<br>MG/M**2 | POTASSIM<br>MG/M**2 | SODIUM<br>MG/M**2 | AMMONIUM<br>AS N<br>MG/M**2 |
|--------------------|---------------------|---------------------|---------------------|-------------------|-----------------------------|
| # OF SAMPLES :     | 142.000             | 90.000              | 98.000              | 101.000           | 105.000                     |
| MAXIMUM :          | 16.920              | 3.200               | 1.326               | 11.200            | 31.460                      |
| MINIMUM :          | 0.020               | 0.020               | 0.009               | 0.020             | 0.004                       |
| RANGE :            | 16.900              | 3.180               | 1.317               | 11.180            | 31.456                      |
| ARITH. MEAN :      | 1.232               | 0.474               | 0.279               | 0.572             | 3.128                       |
| ARITH. STD. DEV. : | 2.073               | 0.612               | 0.307               | 1.154             | 3.878                       |
| GEOM. MEAN :       | 0.628               | 0.248               | 0.159               | 0.326             | 1.573                       |
| GEOM. STD. DEV. :  | 1.171               | 1.168               | 1.142               | 0.987             | 1.455                       |
| 1ST QUARTILE :     | 0.308               | 0.106               | 0.076               | 0.162             | 0.627                       |
| 2ND QUARTILE :     | 0.633               | 0.238               | 0.183               | 0.298             | 2.154                       |
| 3RD QUARTILE :     | 1.448               | 0.516               | 0.333               | 0.617             | 4.332                       |

\*\*\*\*\* : INSUFFICIENT DATA

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : RAILTON/DAILY PRECIPITATION

#10

PERIOD OF REPORT : JAN 6. 81 TO JAN 1.82

PAGE : 1

|                   | PRECIP. | FREE H+ | FREE H+ | TOTAL H+ | SULPHATE | NITRATE | CALCIUM |
|-------------------|---------|---------|---------|----------|----------|---------|---------|
|                   | MM      | FIELD   | LAB     | TO PH8.3 | MG/M**2  | AS N    |         |
|                   |         | MG/M**2 | MG/M**2 | MG/M**2  |          | MG/M**2 | MG/M**2 |
| # OF SAMPLES :    | 117.0   | 48.0000 | 99.0000 | 66.0000  | 103.00   | 103.000 | 80.000  |
| MAXIMUM :         | 55.0    | 19.1790 | 3.2428  | 4.9378   | 171.45   | 23.241  | 26.400  |
| MINIMUM :         | 0.2     | 0.0643  | 0.0003  | 0.0364   | 0.32     | 0.085   | 0.089   |
| RANGE :           | 54.8    | 19.1146 | 3.2425  | 4.9014   | 171.13   | 23.156  | 26.311  |
| ARITH. MEAN :     | 8.5     | 2.0078  | 0.5487  | 1.1248   | 28.62    | 4.728   | 3.610   |
| ARITH. STD. DEV : | 10.5    | 3.1027  | 0.5810  | 0.9370   | 31.17    | 4.495   | 4.706   |
| GEOM. MEAN :      | 4.0     | 1.0596  | 0.2636  | 0.7678   | 14.78    | 2.767   | 2.000   |
| GEOM. STD. DEV. : | 1.3     | 1.1496  | 1.5719  | 0.9923   | 1.33     | 1.236   | 1.137   |
| 1ST QUARTILE :    | 1.7     | 0.5829  | 0.1310  | 0.4524   | 6.66     | 1.626   | 1.038   |
| 2ND QUARTILE :    | 4.0     | 1.0570  | 0.3403  | 0.8273   | 16.65    | 3.744   | 1.915   |
| 3RD QUARTILE :    | 12.1    | 2.2327  | 0.7865  | 1.4632   | 44.43    | 6.380   | 4.533   |

\*\*\*\*\* : INSUFFICIENT DATA

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH



ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

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STATION NAME : RAILTON/DAILY PRECIPITATION

#10

PERIOD OF REPORT : JAN 6, 81 TO JAN 1, 82

PAGE : 2

|                    | CHLORIDE | MAGNESIUM | POTASSIUM | SODIUM  | AMMONIUM<br>AS N |
|--------------------|----------|-----------|-----------|---------|------------------|
|                    | MG/M**2  | MG/M**2   | MG/M**2   | MG/M**2 | MG/M**2          |
| # OF SAMPLES :     | 101.000  | 80.000    | 87.000    | 79.000  | 90.000           |
| MAXIMUM :          | 11.284   | 4.400     | 2.286     | 6.552   | 44.000           |
| MINIMUM :          | 0.010    | 0.004     | 0.007     | 0.011   | 0.010            |
| RANGE :            | 11.274   | 4.396     | 2.279     | 6.541   | 43.990           |
| ARITH. MEAN :      | 1.932    | 0.473     | 0.445     | 1.263   | 3.829            |
| ARITH. STD. DEV. : | 1.739    | 0.693     | 0.470     | 1.120   | 5.484            |
| GEOM. MEAN :       | 1.254    | 0.221     | 0.269     | 0.795   | 1.963            |
| GEOM. STD. DEV. :  | 1.087    | 1.338     | 1.121     | 1.168   | 1.323            |
| 1ST QUARTILE :     | 0.696    | 0.117     | 0.147     | 0.399   | 0.977            |
| 2ND QUARTILE :     | 1.582    | 0.202     | 0.267     | 0.942   | 2.288            |
| 3RD QUARTILE :     | 2.554    | 0.566     | 0.518     | 1.661   | 4.477            |

\*\*\*\*\* : INSUFFICIENT DATA

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : RAVEN LAKE/DAILY PRECIPITATION

#05

PERIOD OF REPORT : FEB 1. 81 TO JAN 1.82

PAGE : 1

|                    | PRECIP.<br>MM | FREE H+<br>FIELD<br>MG/M**2 | FREE H+<br>LAB<br>MG/M**2 | TOTAL H+<br>TO PH8.3<br>MG/M**2 | SULPHATE<br>MG/M**2 | NITRATE<br>AS N<br>MG/M**2 | CALCIUM<br>MG/M**2 |
|--------------------|---------------|-----------------------------|---------------------------|---------------------------------|---------------------|----------------------------|--------------------|
| # OF SAMPLES :     | 122.0         | 56.0000                     | 104.0000                  | 65.0000                         | 112.00              | 110.000                    | 80.000             |
| MAXIMUM :          | 37.2          | 3.4717                      | 3.0237                    | 4.5384                          | 154.38              | 19.716                     | 15.040             |
| MINIMUM :          | 0.2           | 0.0014                      | 0.0003                    | 0.0546                          | 0.15                | 0.078                      | 0.180              |
| RANGE :            | 37.0          | 3.4703                      | 3.0234                    | 4.4838                          | 154.23              | 19.638                     | 14.860             |
| ARITH. MEAN :      | 6.5           | 0.8848                      | 0.4527                    | 0.9148                          | 22.50               | 3.464                      | 2.310              |
| ARITH. STD. DEV. : | 7.1           | 0.8593                      | 0.5897                    | 0.8926                          | 28.93               | 3.597                      | 3.007              |
| GEOM. MEAN :       | 3.6           | 0.5564                      | 0.1993                    | 0.5896                          | 10.95               | 1.942                      | 1.308              |
| GEOM. STD. DEV. :  | 1.2           | 1.1896                      | 1.6380                    | 1.0131                          | 1.32                | 1.205                      | 1.040              |
| 1ST QUARTILE :     | 1.6           | 0.3425                      | 0.0886                    | 0.3114                          | 4.32                | 0.778                      | 0.586              |
| 2ND QUARTILE :     | 3.6           | 0.6084                      | 0.2654                    | 0.6449                          | 12.90               | 2.275                      | 1.231              |
| 3RD QUARTILE :     | 9.0           | 1.1504                      | 0.5529                    | 1.1392                          | 27.64               | 4.886                      | 2.413              |

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\*\*\*\*\* : INSUFFICIENT DATA

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : RAVEN LAKE/DAILY PRECIPITATION #05  
PERIOD OF REPORT : FEB 1, 81 TO JAN 1, 82

PAGE : 2

|                    | CHLORIDE<br>MG/M**2 | MAGNESIUM<br>MG/M**2 | POTASSIUM<br>MG/M**2 | SODIUM<br>MG/M**2 | AMMONIUM<br>AS N<br>MG/M**2 |
|--------------------|---------------------|----------------------|----------------------|-------------------|-----------------------------|
| # OF SAMPLES :     | 103.000             | 95.000               | 88.000               | 84.000            | 92.000                      |
| MAXIMUM :          | 6.750               | 2.444                | 0.860                | 4.650             | 18.972                      |
| MINIMUM :          | 0.045               | 0.006                | 0.010                | 0.026             | 0.003                       |
| RANGE :            | 6.705               | 2.438                | 0.850                | 4.624             | 18.969                      |
| ARITH. MEAN :      | 1.339               | 0.306                | 0.238                | 0.892             | 2.886                       |
| ARITH. STD. DEV. : | 1.308               | 0.411                | 0.231                | 0.881             | 3.572                       |
| GEOM. MEAN :       | 0.839               | 0.147                | 0.148                | 0.554             | 1.316                       |
| GEOM. STD. DEV. :  | 1.039               | 1.296                | 1.033                | 1.072             | 1.552                       |
| 1ST QUARTILE :     | 0.428               | 0.062                | 0.079                | 0.294             | 0.583                       |
| 2ND QUARTILE :     | 0.822               | 0.147                | 0.147                | 0.637             | 1.605                       |
| 3RD QUARTILE :     | 1.756               | 0.373                | 0.303                | 1.125             | 3.699                       |

\*\*\*\*\* : INSUFFICIENT DATA

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : QUETICO/DAILY PRECIPITATION

#14

PERIOD OF REPORT : OCT 16, 81 TO DEC 31, 81

PAGE : 1

|                   | PRECIP.<br>MM | FREE H+<br>FIELD<br>MG/M**2 | FREE H+<br>LAB<br>MG/M**2 | TOTAL H+<br>TO PH8.3<br>MG/M**2 | SULPHATE<br>MG/M**2 | NITRATE<br>AS N<br>MG/M**2 | CALCIUM<br>MG/M**2 |
|-------------------|---------------|-----------------------------|---------------------------|---------------------------------|---------------------|----------------------------|--------------------|
| # OF SAMPLES :    | 29.0          | 4.0000                      | 26.0000                   | 10.0000                         | 25.00               | 25.000                     | 19.000             |
| MAXIMUM :         | 12.0          | 0.3461                      | 0.3508                    | 0.7272                          | 10.93               | 4.575                      | 1.504              |
| MINIMUM :         | 0.1           | 0.0565                      | 0.0033                    | 0.1256                          | 0.15                | 0.056                      | 0.042              |
| RANGE :           | 11.9          | 0.2896                      | 0.3475                    | 0.6016                          | 10.79               | 4.519                      | 1.462              |
| ARITH. MEAN :     | 2.4           | 0.2042                      | 0.0752                    | 0.3292                          | 2.27                | 1.112                      | 0.309              |
| ARITH. STD. DEV : | 2.8           | 0.1578                      | 0.0986                    | 0.2017                          | 2.88                | 1.301                      | 0.414              |
| GEOM. MEAN :      | 1.4           | 0.1508                      | 0.0345                    | 0.2817                          | 1.19                | 0.552                      | 0.163              |
| GEOM. STD. DEV. : | 1.1           | 0.9502                      | 1.3170                    | 0.5804                          | 1.19                | 1.286                      | 1.091              |
| 1ST QUARTILE :    | 0.7           | 0.0678                      | 0.0118                    | 0.1761                          | 0.49                | 0.193                      | 0.060              |
| 2ND QUARTILE :    | 1.1           | 0.2070                      | 0.0416                    | 0.2521                          | 1.21                | 0.483                      | 0.105              |
| 3RD QUARTILE :    | 3.4           | 0.3405                      | 0.0820                    | 0.3486                          | 2.05                | 1.153                      | 0.279              |

\*\*\*\*\* : INSUFFICIENT DATA

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

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STATION NAME : QUETICO/DAILY PRECIPITATION

#14

PERIOD OF REPORT : OCT 16. 81 TO DEC 31.81

PAGE : 2

|                   | CHLORIDE | MAGNESIM | POTASSIM | SODIUM  | AMMONIUM<br>AS N |
|-------------------|----------|----------|----------|---------|------------------|
|                   | MG/M**2  | MG/M**2  | MG/M**2  | MG/M**2 | MG/M**2          |
| # OF SAMPLES :    | 25.000   | 19.000   | 19.000   | 19.000  | 15.000           |
| MAXIMUM :         | 0.560    | 0.211    | 0.150    | 0.300   | 2.700            |
| MINIMUM :         | 0.028    | 0.002    | 0.008    | 0.017   | 0.003            |
| RANGE :           | 0.532    | 0.210    | 0.142    | 0.283   | 2.697            |
| ARITH. MEAN :     | 0.163    | 0.029    | 0.064    | 0.124   | 0.693            |
| ARITH. STD. DEV : | 0.124    | 0.052    | 0.048    | 0.095   | 0.766            |
| GEOM. MEAN :      | 0.123    | 0.012    | 0.045    | 0.089   | 0.290            |
| GEOM. STD. DEV. : | 0.796    | 1.243    | 0.941    | 0.902   | 1.834            |
| 1ST QUARTILE :    | 0.073    | 0.004    | 0.019    | 0.038   | 0.158            |
| 2ND QUARTILE :    | 0.129    | 0.010    | 0.047    | 0.088   | 0.365            |
| 3RD QUARTILE :    | 0.207    | 0.022    | 0.104    | 0.194   | 0.995            |

\*\*\*\*\* : INSUFFICIENT DATA

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : WELLESLEY/DAILY PRECIPITATION

#04

PERIOD OF REPORT : JAN 27, 81 TO JAN 1, 82

PAGE : 1

|                   | PRECIP.<br>MM | FREE H+<br>FIELD<br>MG/M**2 | FREE H+<br>LAB<br>MG/M**2 | TOTAL H+<br>TO PH8.3<br>MG/M**2 | SULPHATE<br>MG/M**2 | NITRATE<br>AS N<br>MG/M**2 | CALCIUM<br>MG/M**2 |
|-------------------|---------------|-----------------------------|---------------------------|---------------------------------|---------------------|----------------------------|--------------------|
| # OF SAMPLES :    | 129.0         | 31.0000                     | 90.0000                   | 62.0000                         | 108.00              | 110.000                    | 78.000             |
| MAXIMUM :         | 57.2          | 3.0718                      | 3.2915                    | 4.5188                          | 133.65              | 16.016                     | 15.732             |
| MINIMUM :         | 0.1           | 0.0398                      | 0.0009                    | 0.0648                          | 0.52                | 0.026                      | 0.200              |
| RANGE :           | 57.1          | 3.0320                      | 3.2906                    | 4.4540                          | 133.13              | 15.990                     | 15.532             |
| ARITH. MEAN :     | 6.6           | 0.7391                      | 0.5415                    | 1.0691                          | 25.16               | 3.551                      | 2.467              |
| ARITH. STD. DEV : | 9.1           | 0.7500                      | 0.6845                    | 0.9834                          | 29.10               | 3.328                      | 2.743              |
| GEOM. MEAN :      | 2.9           | 0.4284                      | 0.2149                    | 0.6885                          | 12.71               | 2.170                      | 1.582              |
| GEOM. STD. DEV. : | 1.4           | 1.1780                      | 1.6519                    | 1.0258                          | 1.30                | 1.121                      | 0.939              |
| 1ST QUARTILE :    | 1.0           | 0.1790                      | 0.0765                    | 0.2811                          | 4.90                | 1.040                      | 0.835              |
| 2ND QUARTILE :    | 3.2           | 0.4609                      | 0.2982                    | 0.8921                          | 14.79               | 2.256                      | 1.422              |
| 3RD QUARTILE :    | 8.2           | 0.9354                      | 0.6798                    | 1.3170                          | 33.95               | 4.990                      | 2.865              |

\*\*\*\*\* : INSUFFICIENT DATA

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : WELLESLEY/DAILY PRECIPITATION #04

PERIOD OF REPORT : JAN 27, 81 TO JAN 1, 82

PAGE : 2

|                    | CHLORIDE | MAGNESIM | POTASSIM | SODIUM  | AMMONIUM<br>AS N |
|--------------------|----------|----------|----------|---------|------------------|
|                    | MG/M**2  | MG/M**2  | MG/M**2  | MG/M**2 | MG/M**2          |
| # OF SAMPLES :     | 105.000  | 74.000   | 83.000   | 84.000  | 83.000           |
| MAXIMUM :          | 4.600    | 6.440    | 1.581    | 2.048   | 17.286           |
| MINIMUM :          | 0.013    | 0.026    | 0.012    | 0.020   | 0.285            |
| RANGE :            | 4.587    | 6.414    | 1.569    | 2.028   | 17.000           |
| ARITH. MEAN :      | 1.033    | 0.528    | 0.208    | 0.479   | 3.765            |
| ARITH. STD. DEV. : | 0.985    | 0.858    | 0.230    | 0.466   | 3.144            |
| GEOM. MEAN :       | 0.629    | 0.283    | 0.141    | 0.312   | 2.644            |
| GEOM. STD. DEV. :  | 1.129    | 1.083    | 0.899    | 0.978   | 0.909            |
| 1ST QUARTILE :     | 0.285    | 0.135    | 0.081    | 0.166   | 1.257            |
| 2ND QUARTILE :     | 0.686    | 0.291    | 0.154    | 0.291   | 2.805            |
| 3RD QUARTILE :     | 1.411    | 0.550    | 0.229    | 0.564   | 5.200            |

\*\*\*\*\* : INSUFFICIENT DATA

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : WHITMAN CREEK/DAILY PRECIPITATION #09

PERIOD OF REPORT : JAN 6, 81 TO JAN 1, 82

PAGE : 1

|                   | PRECIP.<br>MM | FREE H+<br>FIELD<br>MG/M**2 | FREE H+<br>LAB<br>MG/M**2 | TOTAL H+<br>TO PH8.3<br>MG/M**2 | SULPHATE<br>MG/M**2 | NITRATE<br>AS N<br>MG/M**2 | CALCIUM<br>MG/M**2 |
|-------------------|---------------|-----------------------------|---------------------------|---------------------------------|---------------------|----------------------------|--------------------|
| # OF SAMPLES :    | 110.0         | 56.0000                     | 91.0000                   | 63.0000                         | 86.00               | 90.000                     | 74.000             |
| MAXIMUM :         | 51.0          | 18.5170                     | 3.9215                    | 5.3240                          | 264.00              | 21.560                     | 30.360             |
| MINIMUM :         | 0.1           | 0.0290                      | 0.0003                    | 0.0317                          | 0.79                | 0.115                      | 0.171              |
| RANGE :           | 50.9          | 18.4880                     | 3.9212                    | 5.2923                          | 263.21              | 21.445                     | 30.189             |
| ARITH. MEAN :     | 8.9           | 2.0901                      | 0.5448                    | 1.2243                          | 30.41               | 4.600                      | 3.399              |
| ARITH. STD. DEV : | 10.9          | 3.8106                      | 0.8258                    | 1.3298                          | 44.83               | 4.702                      | 5.407              |
| GEOM. MEAN :      | 4.2           | 0.7491                      | 0.1967                    | 0.7296                          | 14.24               | 2.670                      | 1.668              |
| GEOM. STD. DEV. : | 1.3           | 1.4576                      | 1.7308                    | 1.0738                          | 1.30                | 1.167                      | 1.166              |
| 1ST QUARTILE :    | 1.4           | 0.2279                      | 0.0909                    | 0.3248                          | 5.79                | 1.286                      | 0.701              |
| 2ND QUARTILE :    | 4.8           | 0.7915                      | 0.2465                    | 0.7571                          | 18.08               | 2.822                      | 1.630              |
| 3RD QUARTILE :    | 12.2          | 1.5744                      | 0.5895                    | 1.4321                          | 34.51               | 6.083                      | 3.927              |

\*\*\*\*\* : INSUFFICIENT DATA

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH



ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : WHITMAN CREEK/DAILY PRECIPITATION #09

PERIOD OF REPORT : JAN 6, 81 TO JAN 1, 82

PAGE : 2

|                    | CHLORIDE | MAGNESIM | POTASSIM | SODIUM  | AMMONIUM<br>AS N |
|--------------------|----------|----------|----------|---------|------------------|
|                    | MG/M**2  | MG/M**2  | MG/M**2  | MG/M**2 | MG/M**2          |
| # OF SAMPLES :     | 82.000   | 71.000   | 80.000   | 73.000  | 86.000           |
| MAXIMUM :          | 28.750   | 8.200    | 2.772    | 17.500  | 22.000           |
| MINIMUM :          | 0.012    | 0.007    | 0.011    | 0.070   | 0.029            |
| RANGE :            | 28.737   | 8.193    | 2.761    | 17.430  | 21.971           |
| ARITH. MEAN :      | 2.025    | 0.580    | 0.397    | 1.031   | 3.426            |
| ARITH. STD. DEV. : | 3.820    | 1.163    | 0.474    | 2.233   | 4.243            |
| GEOM. MEAN :       | 0.915    | 0.226    | 0.214    | 0.465   | 1.603            |
| GEOM. STD. DEV. :  | 1.273    | 1.363    | 1.192    | 1.140   | 1.396            |
| 1ST QUARTILE :     | 0.416    | 0.072    | 0.095    | 0.220   | 0.659            |
| 2ND QUARTILE :     | 0.989    | 0.231    | 0.238    | 0.363   | 1.843            |
| 3RD QUARTILE :     | 1.856    | 0.502    | 0.476    | 1.015   | 4.498            |

\*\*\*\*\* : INSUFFICIENT DATA

PART VIII

SUMMARY STATISTICS OF OBSERVED DEPOSITION BY REGION

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : CENTRAL REGION/DAILY PRECIPITATION

PERIOD OF REPORT : JAN 1, 81 TO JAN 1, 82

PAGE : 1

|                   | PRECIP.<br>MM | FREE H+<br>FIELD<br>MG/M**2 | FREE H+<br>LAB<br>MG/M**2 | TOTAL H+<br>TO PH8.3<br>MG/M**2 | SULPHATE<br>MG/M**2 | NITRATE<br>AS N<br>MG/M**2 | CALCIUM<br>MG/M**2 |
|-------------------|---------------|-----------------------------|---------------------------|---------------------------------|---------------------|----------------------------|--------------------|
| # OF SAMPLES :    | 510.0         | 234.0000                    | 455.0000                  | 297.0000                        | 461.00              | 462.000                    | 366.000            |
| MAXIMUM :         | 48.2          | 6.5173                      | 4.7214                    | 5.9710                          | 197.75              | 21.700                     | 19.000             |
| MINIMUM :         | 0.1           | 0.0014                      | 0.0003                    | 0.0502                          | 0.04                | 0.007                      | 0.009              |
| RANGE :           | 48.1          | 6.5159                      | 4.7210                    | 5.9208                          | 197.71              | 21.692                     | 18.990             |
| ARITH. MEAN :     | 6.6           | 0.8953                      | 0.4289                    | 0.8952                          | 21.68               | 3.301                      | 1.888              |
| ARITH. STD. DEV : | 7.4           | 0.9951                      | 0.6024                    | 0.8983                          | 29.45               | 3.481                      | 2.810              |
| GEOM. MEAN :      | 3.5           | 0.5552                      | 0.1874                    | 0.5891                          | 10.23               | 1.843                      | 0.873              |
| GEOM. STD. DEV. : | 1.2           | 1.0903                      | 1.5386                    | 0.9533                          | 1.35                | 1.254                      | 1.300              |
| 1ST QUARTILE :    | 1.6           | 0.3200                      | 0.0824                    | 0.3209                          | 4.20                | 0.960                      | 0.357              |
| 2ND QUARTILE :    | 3.8           | 0.5783                      | 0.2414                    | 0.6363                          | 11.29               | 2.166                      | 0.953              |
| 3RD QUARTILE :    | 8.0           | 1.0505                      | 0.4946                    | 1.0914                          | 25.92               | 4.555                      | 1.998              |

\*\*\*\*\* : INSUFFICIENT DATA

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

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STATION NAME : CENTRAL REGION/DAILY PRECIPITATION

PERIOD OF REPORT : JAN 1, 81 TO JAN 1, 82

PAGE : 2

|                    | CHLORIDE | MAGNESIUM | POTASSIUM | SODIUM  | AMMONIUM<br>AS N |
|--------------------|----------|-----------|-----------|---------|------------------|
|                    | MG/M**2  | MG/M**2   | MG/M**2   | MG/M**2 | MG/M**2          |
| # OF SAMPLES :     | 454.000  | 374.000   | 383.000   | 383.000 | 386.000          |
| MAXIMUM :          | 27.040   | 3.886     | 10.570    | 12.939  | 18.972           |
| MINIMUM :          | 0.006    | 0.002     | 0.003     | 0.011   | 0.000            |
| RANGE :            | 27.034   | 3.884     | 10.567    | 12.928  | 18.972           |
| ARITH. MEAN :      | 1.115    | 0.280     | 0.278     | 0.574   | 2.645            |
| ARITH. STD. DEV. : | 1.757    | 0.482     | 0.660     | 0.932   | 3.310            |
| GEOM. MEAN :       | 0.577    | 0.109     | 0.128     | 0.284   | 1.118            |
| GEOM. STD. DEV. :  | 1.230    | 1.445     | 1.263     | 1.205   | 1.674            |
| 1ST QUARTILE :     | 0.282    | 0.039     | 0.057     | 0.115   | 0.527            |
| 2ND QUARTILE :     | 0.633    | 0.120     | 0.130     | 0.281   | 1.452            |
| 3RD QUARTILE :     | 1.320    | 0.304     | 0.312     | 0.678   | 3.376            |

\*\*\*\*\* : INSUFFICIENT DATA

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY.

STATION NAME : NORTHWESTERN REGION/DAILY PRECIPITATION

PERIOD OF REPORT : SEP 23, 81 TO DEC 31, 81

PAGE : 1

|                    | PRECIP.<br>MM | FREE H+<br>FIELD<br>MG/M**2 | FREE H+<br>LAB<br>MG/M**2 | TOTAL H+<br>TO PH8.3<br>MG/M**2 | SULPHATE<br>MG/M**2 | NITRATE<br>AS N<br>MG/M**2 | CALCIUM<br>MG/M**2 |
|--------------------|---------------|-----------------------------|---------------------------|---------------------------------|---------------------|----------------------------|--------------------|
| # OF SAMPLES :     | 107.0         | 18.0000                     | 94.0000                   | 49.0000                         | 86.00               | 86.000                     | 69.000             |
| MAXIMUM :          | 18.9          | 0.9693                      | 1.0628                    | 1.7615                          | 45.36               | 10.080                     | 2.700              |
| MINIMUM :          | 0.1           | 0.0389                      | 0.0010                    | 0.0666                          | 0.04                | 0.004                      | 0.006              |
| RANGE :            | 18.8          | 0.9304                      | 1.0618                    | 1.6949                          | 45.32               | 10.076                     | 2.694              |
| ARITH. MEAN :      | 3.5           | 0.2558                      | 0.1187                    | 0.3866                          | 4.52                | 1.258                      | 0.419              |
| ARITH. STD. DEV. : | 4.2           | 0.2449                      | 0.1792                    | 0.3258                          | 6.86                | 1.652                      | 0.529              |
| GEOM. MEAN :       | 1.6           | 0.1724                      | 0.0493                    | 0.2970                          | 1.88                | 0.560                      | 0.197              |
| GEOM. STD. DEV. :  | 1.4           | 0.9418                      | 1.4091                    | 0.7133                          | 1.46                | 1.567                      | 1.331              |
| 1ST QUARTILE :     | 0.6           | 0.0678                      | 0.0152                    | 0.1851                          | 0.71                | 0.249                      | 0.071              |
| 2ND QUARTILE :     | 1.6           | 0.2108                      | 0.0568                    | 0.2522                          | 2.35                | 0.761                      | 0.185              |
| 3RD QUARTILE :     | 4.3           | 0.2993                      | 0.1445                    | 0.4871                          | 5.12                | 1.535                      | 0.482              |

\*\*\*\*\* : INSUFFICIENT DATA

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION:  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

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STATION NAME : NORTHWESTERN REGION/DAILY PRECIPITATION

PERIOD OF REPORT : SEP 23, 81 TO DEC 31, 81

PAGE : 2

|                    | CHLORIDE | MAGNESIUM | POTASSIUM | SODIUM  | AMMONIUM<br>AS N |
|--------------------|----------|-----------|-----------|---------|------------------|
|                    | MG/M**2  | MG/M**2   | MG/M**2   | MG/M**2 | MG/M**2          |
| # OF SAMPLES :     | 87.000   | 59.000    | 69.000    | 69.000  | 67.000           |
| MAXIMUM :          | 3.300    | 0.406     | 1.024     | 3.450   | 5.500            |
| MINIMUM :          | 0.005    | 0.002     | 0.006     | 0.006   | 0.001            |
| RANGE :            | 3.295    | 0.404     | 1.018     | 3.444   | 5.499            |
| ARITH. MEAN :      | 0.209    | 0.048     | 0.124     | 0.277   | 0.751            |
| ARITH. STD. DEV. : | 0.384    | 0.077     | 0.187     | 0.520   | 0.911            |
| GEOM. MEAN :       | 0.102    | 0.020     | 0.062     | 0.116   | 0.294            |
| GEOM. STD. DEV. :  | 1.211    | 1.287     | 1.178     | 1.267   | 1.862            |
| 1ST QUARTILE :     | 0.047    | 0.009     | 0.025     | 0.043   | 0.137            |
| 2ND QUARTILE :     | 0.104    | 0.016     | 0.067     | 0.096   | 0.465            |
| 3RD QUARTILE :     | 0.243    | 0.046     | 0.126     | 0.240   | 0.990            |

\*\*\*\*\* : INSUFFICIENT DATA

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

STATION NAME : SOUTHEASTERN REGION/DAILY PRECIPITATION

PERIOD OF REPORT : JAN 1, 81 TO JAN 1, 82

PAGE : 1

|                   | PRECIP.<br>MM | FREE H+<br>FIELD<br>MG/M**2 | FREE H+<br>LAB<br>MG/M**2 | TOTAL H+<br>TO PH8.3<br>MG/M**2 | SULPHATE<br>MG/M**2 | NITRATE<br>AS N<br>MG/M**2 | CALCIUM<br>MG/M**2 |
|-------------------|---------------|-----------------------------|---------------------------|---------------------------------|---------------------|----------------------------|--------------------|
| # OF SAMPLES :    | 536.0         | 225.0000                    | 430.0000                  | 299.0000                        | 436.00              | 443.000                    | 354.000            |
| MAXIMUM :         | 55.0          | 19.1790                     | 3.9215                    | 5.3240                          | 264.00              | 61.920                     | 47.520             |
| MINIMUM :         | 0.0           | 0.0149                      | 0.0003                    | 0.0317                          | 0.24                | 0.012                      | 0.060              |
| RANGE :           | 55.0          | 19.1641                     | 3.9212                    | 5.2923                          | 263.76              | 61.908                     | 47.460             |
| ARITH. MEAN :     | 7.5           | 1.5024                      | 0.4843                    | 0.9843                          | 24.97               | 4.214                      | 2.833              |
| ARITH. STD. DEV : | 9.1           | 2.5636                      | 0.6173                    | 0.9546                          | 31.28               | 4.935                      | 4.529              |
| GEOM. MEAN :      | 3.5           | 0.6902                      | 0.2099                    | 0.6421                          | 12.87               | 2.369                      | 1.438              |
| GEOM. STD. DEV. : | 1.4           | 1.2931                      | 1.5990                    | 0.9916                          | 1.27                | 1.246                      | 1.166              |
| 1ST QUARTILE :    | 1.4           | 0.3211                      | 0.0966                    | 0.3566                          | 5.76                | 1.298                      | 0.643              |
| 2ND QUARTILE :    | 4.1           | 0.7462                      | 0.2531                    | 0.6900                          | 15.32               | 2.815                      | 1.399              |
| 3RD QUARTILE :    | 9.9           | 1.5247                      | 0.6108                    | 1.2186                          | 31.47               | 5.555                      | 3.270              |

\*\*\*\*\* : INSUFFICIENT DATA

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

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STATION NAME : SOUTHEASTERN REGION/DAILY PRECIPITATION

PERIOD OF REPORT : JAN 1, 81 TO JAN 1, 82

PAGE : 2

|                    | CHLORIDE | MAGNESIUM | POTASSIUM | SODIUM  | AMMONIUM<br>AS N |
|--------------------|----------|-----------|-----------|---------|------------------|
|                    | MG/M**2  | MG/M**2   | MG/M**2   | MG/M**2 | MG/M**2          |
| # OF SAMPLES :     | 428.000  | 340.000   | 376.000   | 352.000 | 403.000          |
| MAXIMUM :          | 28.750   | 10.080    | 8.000     | 17.500  | 44.000           |
| MINIMUM :          | 0.010    | 0.003     | 0.006     | 0.002   | 0.002            |
| RANGE :            | 28.740   | 10.077    | 7.994     | 17.498  | 43.998           |
| ARITH. MEAN :      | 1.605    | 0.449     | 0.363     | 0.984   | 3.066            |
| ARITH. STD. DEV. : | 2.282    | 0.883     | 0.565     | 1.461   | 3.953            |
| GEOM. MEAN :       | 0.858    | 0.189     | 0.196     | 0.497   | 1.463            |
| GEOM. STD. DEV. :  | 1.227    | 1.346     | 1.155     | 1.233   | 1.492            |
| 1ST QUARTILE :     | 0.441    | 0.078     | 0.096     | 0.215   | 0.731            |
| 2ND QUARTILE :     | 0.964    | 0.185     | 0.204     | 0.512   | 1.874            |
| 3RD QUARTILE :     | 1.864    | 0.491     | 0.431     | 1.181   | 3.962            |

\*\*\*\*\* : INSUFFICIENT DATA



ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

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STATION NAME : SOUTHWESTERN REGION/DAILY PRECIPITATION

PERIOD OF REPORT : JAN 1, 81 TO JAN 1, 82

PAGE : 1

|                    | PRECIP.<br>MM | FREE H+<br>FIELD<br>MG/M**2 | FREE H+<br>LAB<br>MG/M**2 | TOTAL H+<br>TO PH8.3<br>MG/M**2 | SULPHATE<br>MG/M**2 | NITRATE<br>AS N<br>MG/M**2 | CALCIUM<br>MG/M**2 |
|--------------------|---------------|-----------------------------|---------------------------|---------------------------------|---------------------|----------------------------|--------------------|
| # OF SAMPLES :     | 559.0         | 128.0000                    | 390.0000                  | 269.0000                        | 459.00              | 464.000                    | 330.000            |
| MAXIMUM :          | 60.5          | 3.1936                      | 4.0545                    | 5.2100                          | 217.50              | 23.634                     | 47.077             |
| MINIMUM :          | 0.0           | 0.0016                      | 0.0001                    | 0.0447                          | 0.28                | 0.012                      | 0.091              |
| RANGE :            | 60.5          | 3.1919                      | 4.0544                    | 5.1653                          | 217.22              | 23.622                     | 46.986             |
| ARITH. MEAN :      | 6.3           | 0.7349                      | 0.5212                    | 1.0181                          | 25.70               | 3.821                      | 2.851              |
| ARITH. STD. DEV. : | 8.2           | 0.6785                      | 0.6469                    | 0.9538                          | 30.82               | 3.713                      | 3.931              |
| GEOM. MEAN :       | 2.8           | 0.4009                      | 0.2111                    | 0.6369                          | 12.57               | 2.118                      | 1.683              |
| GEOM. STD. DEV. :  | 1.4           | 1.4278                      | 1.6539                    | 1.0687                          | 1.36                | 1.300                      | 1.029              |
| 1ST QUARTILE :     | 1.0           | 0.2316                      | 0.0836                    | 0.2875                          | 5.17                | 1.090                      | 0.814              |
| 2ND QUARTILE :     | 3.2           | 0.5449                      | 0.2774                    | 0.7824                          | 15.31               | 2.694                      | 1.668              |
| 3RD QUARTILE :     | 8.0           | 1.0240                      | 0.7090                    | 1.3688                          | 35.43               | 5.516                      | 3.450              |

\*\*\*\*\* : INSUFFICIENT DATA

NOTE(1): PRECIP. VALUES REPRESENT GAUGE DEPTH

ONTARIO MINISTRY OF THE ENVIRONMENT  
SUMMARY STATISTICS OF CALCULATED DEPOSITION  
APIOS - ACID PRECIPITATION IN ONTARIO STUDY

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STATION NAME : SOUTHWESTERN REGION/DAILY PRECIPITATION

PERIOD OF REPORT : JAN 1.81 TO JAN 1.82

PAGE : 2

|                    | CHLORIDE | MAGNESIM | POTASSIM | SODIUM  | AMMONIUM<br>AS N |
|--------------------|----------|----------|----------|---------|------------------|
|                    | MG/M**2  | MG/M**2  | MG/M**2  | MG/M**2 | MG/M**2          |
| # OF SAMPLES :     | 451.000  | 336.000  | 364.000  | 361.000 | 372.000          |
| MAXIMUM :          | 16.920   | 6.440    | 6.342    | 11.200  | 45.738           |
| MINIMUM :          | 0.013    | 0.013    | 0.009    | 0.020   | 0.004            |
| RANGE :            | 16.907   | 6.427    | 6.333    | 11.180  | 45.734           |
| ARITH. MEAN :      | 1.349    | 0.500    | 0.363    | 0.723   | 3.660            |
| ARITH. STD. DEV. : | 1.552    | 0.666    | 0.603    | 0.946   | 4.195            |
| GEOM. MEAN :       | 0.802    | 0.275    | 0.200    | 0.437   | 2.132            |
| GEOM. STD. DEV. :  | 1.133    | 1.142    | 1.081    | 1.026   | 1.206            |
| 1ST QUARTILE :     | 0.418    | 0.131    | 0.096    | 0.211   | 1.081            |
| 2ND QUARTILE :     | 0.956    | 0.290    | 0.207    | 0.448   | 2.624            |
| 3RD QUARTILE :     | 1.768    | 0.610    | 0.422    | 0.960   | 4.899            |

\*\*\*\*\* : INSUFFICIENT DATA

PART IX

STATISTICAL DISTRIBUTION COMPARISON OF OBSERVED CONCENTRATION

STATISTICAL DISTRIBUTION COMPARISON OF OBSERVED CONCENTRATION  
NORMALITY VS. LOG-NORMALITY

CENTRAL REGION

| Variable            | Units   | Sample Size | Critical D<br>$\alpha = 0.05$ | Observed Results |          |                | $\log_e$ (Observed Results) |          |                |
|---------------------|---------|-------------|-------------------------------|------------------|----------|----------------|-----------------------------|----------|----------------|
|                     |         |             |                               | Skewness         | Kurtosis | D<br>Statistic | Skewness                    | Kurtosis | D<br>Statistic |
| Gauge Depth         | mm      | 510         | 0.040                         | 2.02             | 4.66     | 0.193          | -0.30                       | -0.32    | 0.050          |
| Conductance         | umho/cm | 305         | 0.051                         | 2.21             | 8.36     | 0.162          | -0.05                       | -0.04    | 0.036*         |
| Field pH            | -       | 234         | 0.058                         | 1.77             | 8.65     | 0.099          | 0.10                        | 4.94     | 0.080          |
| Lab pH              | -       | 455         | 0.042                         | 1.67             | 5.24     | 0.115          | 1.06                        | 2.87     | 0.089          |
| Free Hydrogen (Lab) | mg/l    | 455         | 0.042                         | 2.16             | 6.08     | 0.157          | -1.67                       | 5.24     | 0.115          |
| Total Hydrogen      | mg/l    | 297         | 0.052                         | 2.48             | 11.38    | 0.138          | 0.16                        | 0.28     | 0.039*         |
| Sulphate            | mg/l    | 461         | 0.042                         | 1.86             | 4.57     | 0.126          | 0.74                        | 1.37     | 0.055          |
| Nitrate as N        | mg/l    | 462         | 0.042                         | 1.82             | 3.98     | 0.158          | 0.92                        | 2.50     | 0.054          |
| Calcium             | mg/l    | 366         | 0.047                         | 3.07             | 12.91    | 0.239          | -0.06                       | -0.47    | 0.042*         |
| Chloride            | mg/l    | 454         | 0.042                         | 3.27             | 15.21    | 0.197          | -0.79                       | 0.99     | 0.095          |
| Magnesium           | mg/l    | 374         | 0.046                         | 3.11             | 13.40    | 0.260          | 0.03                        | -0.92    | 0.102          |
| Potassium           | mg/l    | 383         | 0.046                         | 5.39             | 40.18    | 0.277          | 0.14                        | -0.46    | 0.117          |
| Sodium              | mg/l    | 383         | 0.046                         | 5.14             | 35.86    | 0.281          | 0.0                         | -0.09    | 0.065          |
| Ammonium as N       | mg/l    | 386         | 0.045                         | 1.48             | 2.36     | 0.143          | -1.45                       | 2.98     | 0.093          |

\* D-statistic passes normality criterion

STATISTICAL DISTRIBUTION COMPARISON OF OBSERVED CONCENTRATION  
NORMALITY VS. LOG-NORMALITY

NORTHWESTERN REGION

| Variable            | Units   | Sample Size | Critical D<br>$\alpha = 0.05$ | Observed Results |           |                | log <sub>e</sub> (Observed Results) |           |                |
|---------------------|---------|-------------|-------------------------------|------------------|-----------|----------------|-------------------------------------|-----------|----------------|
|                     |         |             |                               | Ske wness        | Kur tosis | D<br>Statistic | Ske wness                           | Kur tosis | D<br>Statistic |
| Gauge Depth         | mm      | 107         | 0.086                         | 1.76             | 2.49      | 0.209          | -0.23                               | -0.64     | 0.068*         |
| Conductance         | umho/cm | 57          | 0.117                         | 3.60             | 16.20     | 0.238          | 0.53                                | 0.56      | 0.084*         |
| Field pH            | -       | 18          | -                             | -                | -         | -              | -                                   | -         | -              |
| Lab pH              | -       | 94          | 0.092                         | 0.44             | 0.96      | 0.070*         | 0.10                                | 0.59      | 0.063*         |
| Free Hydrogen (Lab) | mg/l    | 94          | 0.092                         | 2.98             | 12.37     | 0.169          | -0.44                               | 0.96      | 0.070*         |
| Total Hydrogen      | mg/l    | 49          | -                             | -                | -         | -              | -                                   | -         | -              |
| Sulphate            | mg/l    | 86          | 0.096                         | 3.33             | 12.10     | 0.279          | 0.23                                | -0.02     | 0.063*         |
| Nitrate as N        | mg/l    | 86          | 0.096                         | 3.58             | 15.98     | 0.213          | -0.96                               | 2.55      | 0.094*         |
| Calcium             | mg/l    | 69          | 0.107                         | 4.27             | 23.63     | 0.270          | -0.03                               | 0.09      | 0.087*         |
| Chloride            | mg/l    | 87          | 0.095                         | 2.29             | 6.02      | 0.210          | -0.44                               | -0.71     | 0.158          |
| Magnesium           | mg/l    | 69          | 0.107                         | 3.72             | 15.43     | 0.322          | 0.97                                | 0.07      | 0.245          |
| Potassium           | mg/l    | 69          | 0.107                         | 3.50             | 13.49     | 0.297          | 0.49                                | -0.07     | 0.132          |
| Sodium              | mg/l    | 69          | 0.107                         | 1.98             | 4.81      | 0.205          | -0.01                               | -0.96     | 0.109          |
| Ammonium as N       | mg/l    | 67          | 0.108                         | 4.20             | 22.72     | 0.251          | -1.08                               | 1.48      | 0.128          |

\* D-statistic passes normality criterion

STATISTICAL DISTRIBUTION COMPARISON OF OBSERVED CONCENTRATION  
NORMALITY VS. LOG-NORMALITY

SOUTHEASTERN REGION

| Variable            | Units   | Sample Size | Critical D<br>$\alpha = 0.05$ | Observed Results |          |                | $\log_e$ (Observed Results) |          |                |
|---------------------|---------|-------------|-------------------------------|------------------|----------|----------------|-----------------------------|----------|----------------|
|                     |         |             |                               | Skewness         | Kurtosis | D<br>Statistic | Skewness                    | Kurtosis | D<br>Statistic |
| Gauge Depth         | mm      | 537         | 0.039                         | 2.24             | 5.81     | 0.208          | -0.51                       | -0.12    | 0.068          |
| Conductance         | umho/cm | 300         | 0.052                         | 1.40             | 4.24     | 0.079          | -0.60                       | 0.25     | 0.077          |
| Field pH            | -       | 226         | 0.059                         | 0.32             | 1.34     | 0.068          | -0.16                       | 0.67     | 0.072          |
| Lab pH              | -       | 433         | 0.043                         | 1.82             | 5.41     | 0.117          | 1.23                        | 2.82     | 0.090          |
| Free Hydrogen (Lab) | mg/l    | 433         | 0.043                         | 1.99             | 6.74     | 0.121          | -1.82                       | 5.41     | 0.117          |
| Total Hydrogen      | mg/l    | 300         | 0.052                         | 1.26             | 2.32     | 0.091          | -0.13                       | -0.34    | 0.040*         |
| Sulphate            | mg/l    | 438         | 0.043                         | 1.85             | 5.70     | 0.107          | -0.92                       | 1.85     | 0.086          |
| Nitrate as N        | mg/l    | 445         | 0.042                         | 4.99             | 38.34    | 0.186          | -0.78                       | 2.05     | 0.061          |
| Calcium             | mg/l    | 355         | 0.047                         | 4.45             | 26.55    | 0.267          | -0.03                       | -0.18    | 0.027*         |
| Chloride            | mg/l    | 430         | 0.043                         | 3.09             | 14.01    | 0.179          | -0.74                       | 1.38     | 0.083          |
| Magnesium           | mg/l    | 341         | 0.048                         | 5.34             | 40.80    | 0.293          | -0.08                       | -0.63    | 0.087          |
| Potassium           | mg/l    | 378         | 0.046                         | 4.48             | 27.55    | 0.261          | 0.09                        | -0.32    | 0.113          |
| Sodium              | mg/l    | 354         | 0.047                         | 2.25             | 5.46     | 0.206          | -0.20                       | -0.43    | 0.062          |
| Ammonium as N       | mg/l    | 406         | 0.044                         | 1.63             | 3.16     | 0.142          | -1.69                       | 4.30     | 0.121          |

\* D-statistic passes normality criterion

STATISTICAL DISTRIBUTION COMPARISON OF OBSERVED CONCENTRATION  
NORMALITY VS. LOG-NORMALITY

SOUTHWESTERN REGION

| Variable            | Units   | Sample Size | Critical D<br>$\alpha = 0.05$ | Observed Results |           |                | log <sub>e</sub> (Observed Results) |           |                |
|---------------------|---------|-------------|-------------------------------|------------------|-----------|----------------|-------------------------------------|-----------|----------------|
|                     |         |             |                               | Ske wness        | Kur tosis | D<br>Statistic | Ske wness                           | Kur tosis | D<br>Statistic |
| Gauge Depth         | mm      | 559         | 0.037                         | 2.75             | 10.76     | 0.224          | -0.37                               | -0.30     | 0.054          |
| Conductance         | umho/cm | 276         | 0.053                         | 1.52             | 2.49      | 0.138          | -0.35                               | 0.37      | 0.043*         |
| Field pH            | -       | 128         | 0.077                         | 2.21             | 6.72      | 0.168          | 1.68                                | 4.06      | 0.153          |
| Lab pH              | -       | 390         | 0.045                         | 1.39             | 3.82      | 0.109          | 0.80                                | 2.05      | 0.084          |
| Free Hydrogen (Lab) | mg/l    | 390         | 0.045                         | 3.59             | 21.42     | 0.175          | -1.39                               | 3.82      | 0.109          |
| Total Hydrogen      | mg/l    | 269         | 0.054                         | 1.75             | 3.83      | 0.151          | 0.14                                | -0.07     | 0.043*         |
| Sulphate            | mg/l    | 459         | 0.041                         | 2.23             | 8.42      | 0.141          | -0.41                               | 0.22      | 0.034*         |
| Nitrate as N        | mg/l    | 464         | 0.041                         | 2.84             | 12.37     | 0.146          | -1.15                               | 3.19      | 0.082          |
| Calcium             | mg/l    | 330         | 0.049                         | 2.59             | 9.53      | 0.192          | -0.06                               | -0.63     | 0.053          |
| Chloride            | mg/l    | 451         | 0.041                         | 5.75             | 56.67     | 0.227          | -0.90                               | 1.65      | 0.101          |
| Magnesium           | mg/l    | 336         | 0.048                         | 2.26             | 6.61      | 0.188          | -0.57                               | 0.00      | 0.071          |
| Potassium           | mg/l    | 364         | 0.046                         | 5.96             | 47.33     | 0.280          | 0.19                                | 0.08      | 0.102          |
| Sodium              | mg/l    | 361         | 0.046                         | 4.67             | 38.71     | 0.231          | -0.09                               | -0.34     | 0.054          |
| Ammonium as N       | mg/l    | 372         | 0.046                         | 3.71             | 21.22     | 0.163          | -1.47                               | 7.04      | 0.069          |

\* D-statistic passes normality criterion

PART X

STATISTICAL DISTRIBUTION COMPARISON OF OBSERVED DEPOSITION

6AR7-14/15



STATISTICAL DISTRIBUTION COMPARISON OF OBSERVED DEPOSITION  
NORMALITY VS. LOG-NORMALITY

CENTRAL REGION

| Variable              | Units   | Sample Size | Critical D<br>$\alpha = 0.05$ | Observed Results |          |                | $\log_e$ (Observed Results) |          |                |
|-----------------------|---------|-------------|-------------------------------|------------------|----------|----------------|-----------------------------|----------|----------------|
|                       |         |             |                               | Skewness         | Kurtosis | D<br>Statistic | Skewness                    | Kurtosis | D<br>Statistic |
| Free Hydrogen (Field) | mg/m**2 | 234         | 0.058                         | 2.78             | 9.74     | 0.205          | -1.33                       | 6.15     | 0.072          |
| Free Hydrogen (Lab)   | mg/m**2 | 455         | 0.042                         | 3.28             | 13.59    | 0.238          | -1.09                       | 2.23     | 0.079          |
| Total Hydrogen        | mg/m**2 | 297         | 0.052                         | 2.41             | 7.34     | 0.173          | -0.22                       | -0.17    | 0.052          |
| Sulphate              | mg/m**2 | 461         | 0.042                         | 2.93             | 10.26    | 0.231          | -0.50                       | 0.49     | 0.047          |
| Nitrate as N          | mg/m**2 | 462         | 0.042                         | 2.16             | 5.93     | 0.172          | -0.93                       | 1.51     | 0.072          |
| Calcium               | mg/m**2 | 366         | 0.047                         | 3.27             | 12.98    | 0.250          | -0.19                       | 0.07     | 0.034*         |
| Chloride              | mg/m**2 | 454         | 0.042                         | 8.20             | 107.68   | 0.264          | -0.47                       | 0.54     | 0.047          |
| Magnesium             | mg/m**2 | 374         | 0.046                         | 4.10             | 21.70    | 0.282          | -0.10                       | -0.34    | 0.031*         |
| Potassium             | mg/m**2 | 383         | 0.047                         | 11.74            | 168.48   | 0.339          | -0.24                       | 0.28     | 0.031*         |
| Sodium                | mg/m**2 | 383         | 0.047                         | 7.10             | 82.37    | 0.273          | 0.05                        | -0.48    | 0.045*         |
| Ammonium as N         | mg/m**2 | 386         | 0.045                         | 2.42             | 6.79     | 0.212          | -1.35                       | 2.79     | 0.130          |

\* D-statistic passes normality criterion

STATISTICAL DISTRIBUTION COMPARISON OF OBSERVED DEPOSITION  
NORMALITY VS. LOG-NORMALITY

NORTHWESTERN REGION

| Variable              | Units   | Sample Size | Critical D<br>$\alpha = 0.05$ | Observed Results |          |                | log <sub>e</sub> (Observed Results) |          |                |
|-----------------------|---------|-------------|-------------------------------|------------------|----------|----------------|-------------------------------------|----------|----------------|
|                       |         |             |                               | Skewness         | Kurtosis | D<br>Statistic | Skewness                            | Kurtosis | D<br>Statistic |
| Free Hydrogen (Field) | mg/m**2 | 18          | -                             | -                | -        | -              | -                                   | -        | -              |
| Free Hydrogen (Lab)   | mg/m**2 | 94          | 0.092                         | 3.12             | 11.89    | 0.256          | -0.07                               | -0.49    | 0.052*         |
| Total Hydrogen        | mg/m**2 | 49          | -                             | -                | -        | -              | -                                   | -        | -              |
| Sulphate              | mg/m**2 | 86          | 0.096                         | 3.47             | 15.63    | 0.257          | -0.37                               | -0.02    | 0.071*         |
| Nitrate as N          | mg/m**2 | 86          | 0.096                         | 3.10             | 12.49    | 0.224          | -1.13                               | 1.81     | 0.117          |
| Calcium               | mg/m**2 | 69          | 0.107                         | 2.14             | 5.23     | 0.241          | -0.21                               | -0.28    | 0.067*         |
| Chloride              | mg/m**2 | 87          | 0.096                         | 6.36             | 49.48    | 0.297          | -0.11                               | 0.21     | 0.045*         |
| Magnesium             | mg/m**2 | 69          | 0.107                         | 2.84             | 8.79     | 0.275          | 0.39                                | -0.44    | 0.105*         |
| Potassium             | mg/m**2 | 69          | 0.107                         | 3.17             | 10.85    | 0.291          | 0.15                                | -0.18    | 0.069*         |
| Sodium                | mg/m**2 | 69          | 0.107                         | 4.27             | 21.84    | 0.301          | 0.39                                | -0.02    | 0.068*         |
| Ammonium as N         | mg/m**2 | 67          | 0.108                         | 2.69             | 10.50    | 0.205          | -1.39                               | 2.02     | 0.134          |

\* D-statistic passes normality criterion

STATISTICAL DISTRIBUTION COMPARISON OF OBSERVED DEPOSITION  
NORMALITY VS. LOG-NORMALITY

SOUTHEASTERN REGION

| Variable              | Units   | Sample Size | Critical D<br>$\alpha = 0.05$ | Observed Results |          |                | $\log_e$ (Observed Results) |          |                |
|-----------------------|---------|-------------|-------------------------------|------------------|----------|----------------|-----------------------------|----------|----------------|
|                       |         |             |                               | Skewness         | Kurtosis | D<br>Statistic | Skewness                    | Kurtosis | D<br>Statistic |
| Free Hydrogen (Field) | mg/m**2 | 225         | 0.059                         | 4.68             | 26.53    | 0.281          | -0.25                       | 0.39     | 0.051*         |
| Free Hydrogen (Lab)   | mg/m**2 | 431         | 0.043                         | 2.54             | 7.82     | 0.217          | -1.23                       | 2.59     | 0.080          |
| Total Hydroben        | mg/m**2 | 299         | 0.052                         | 2.14             | 5.37     | 0.163          | -0.45                       | 0.19     | 0.068          |
| Sulphate              | mg/m**2 | 436         | 0.043                         | 3.21             | 14.95    | 0.215          | -0.46                       | -0.03    | 0.063          |
| Nitrate as N          | mg/m**2 | 443         | 0.042                         | 4.77             | 43.71    | 0.197          | -0.95                       | 1.35     | 0.099          |
| Calcium               | mg/m**2 | 354         | 0.047                         | 5.06             | 35.78    | 0.270          | 0.03                        | -1.10    | 0.024*         |
| Chloride              | mg/m**2 | 428         | 0.043                         | 5.60             | 51.19    | 0.242          | -0.70                       | 1.23     | 0.062          |
| Magnesium             | mg/m**2 | 340         | 0.048                         | 6.69             | 60.20    | 0.307          | -0.11                       | 0.02     | 0.040*         |
| Potassium             | mg/m**2 | 376         | 0.046                         | 7.60             | 90.99    | 0.264          | -0.27                       | 0.16     | 0.045*         |
| Sodium                | mg/m**2 | 352         | 0.048                         | 5.44             | 48.97    | 0.251          | -0.34                       | 0.66     | 0.051          |
| Ammonium as N         | mg/m**2 | 404         | 0.044                         | 4.23             | 31.55    | 0.219          | -1.24                       | 2.49     | 0.092          |

\* D-statistic passes normality criterion

STATISTICAL DISTRIBUTION COMPARISON OF OBSERVED DEPOSITION  
NORMALITY VS. LOG-NORMALITY

SOUTHWESTERN REGION

| Variable              | Units   | Sample Size | Critical D<br>$\alpha = 0.05$ | Observed Results |          |                | $\log_e$ (Observed Results) |          |                |
|-----------------------|---------|-------------|-------------------------------|------------------|----------|----------------|-----------------------------|----------|----------------|
|                       |         |             |                               | Skewness         | Kurtosis | D<br>Statistic | Skewness                    | Kurtosis | D<br>Statistic |
| Free Hydrogen (Field) | mg/m**2 | 128         | 0.077                         | 1.51             | 2.30     | 0.140          | -1.49                       | 2.65     | 0.162          |
| Free Hydrogen (Lab)   | mg/m**2 | 390         | 0.045                         | 2.25             | 5.99     | 0.210          | -0.90                       | 0.89     | 0.090          |
| Total Hydrogen        | mg/m**2 | 269         | 0.054                         | 1.78             | 3.75     | 0.154          | -0.46                       | -0.50    | 0.095          |
| Sulphate              | mg/m**2 | 459         | 0.041                         | 2.52             | 8.71     | 0.205          | -0.51                       | -0.27    | 0.070          |
| Nitrate as N          | mg/m**2 | 464         | 0.041                         | 1.67             | 3.54     | 0.153          | -0.98                       | 1.04     | 0.077          |
| Calcium               | mg/m**2 | 330         | 0.049                         | 5.80             | 53.21    | 0.241          | 0.02                        | -0.14    | 0.026*         |
| Chloride              | mg/m**2 | 451         | 0.041                         | 4.42             | 32.95    | 0.195          | -0.69                       | 0.65     | 0.068          |
| Magnesium             | mg/m**2 | 336         | 0.048                         | 4.26             | 27.76    | 0.232          | -0.20                       | -0.14    | 0.037*         |
| Potassium             | mg/m**2 | 364         | 0.046                         | 6.52             | 56.00    | 0.279          | -0.04                       | 0.31     | 0.032*         |
| Sodium                | mg/m**2 | 361         | 0.046                         | 5.52             | 47.86    | 0.229          | -0.14                       | 0.02     | 0.045*         |
| Ammonium as N         | mg/m**2 | 372         | 0.046                         | 4.37             | 32.82    | 0.192          | -1.17                       | 3.22     | 0.100          |

\* D-statistic passes normality criterion

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